

10/728,766

=> d his

(FILE 'HOME' ENTERED AT 11:43:12 ON 16 AUG 2005)

FILE 'MEDLINE, EMBASE, BIOSIS, BIOTECHDS, SCISEARCH, HCAPLUS, NTIS, LIFESCI' ENTERED AT 11:43:37 ON 16 AUG 2005

L1 23701 S THIOREDOXIN
L2 48386 S INCLUSION (A)BOD?
L3 226 S L1 AND L2
L4 2 S "INCLUSION PARTNER PROTEIN"
L5 282010 S INSOLUBLE
L6 55 S L3 AND L5
L7 20 DUP REM L6 (35 DUPLICATES REMOVED)
E CHATTERJEE D/AU
L8 1046 S E3
E LONGO M/AU
L9 646 S E3
E FLYNN E/AU
L10 272 S E3
E OBERFELDER R/AU
L11 56 S E3-E7
L12 2013 S L8 OR L9 OR L10 OR L11
L13 4 S L3 AND L12
L14 3 DUP REM L13 (1 DUPLICATE REMOVED)

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NEWS	6	MAR 03	REGISTRY/ZREGISTRY - Sequence annotations enhanced
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NEWS	21	JUN 13	FRFULL enhanced with patent drawing images
NEWS	22	JUN 27	MARPAT displays enhanced with expanded G-group definitions and text labels
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NEWS	25	JUL 13	SCISEARCH reloaded
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NEWS	28	AUG 11	STN AnaVist workshops to be held in North America
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=> file medline embase biosis biotechds scisearch hcaplus ntis lifesci		
COST IN U.S. DOLLARS	SINCE FILE	TOTAL
	ENTRY	SESSION
FULL ESTIMATED COST	0.21	0.21

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FILE 'EMBASE' ENTERED AT 11:43:37 ON 16 AUG 2005
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FILE 'HCAPLUS' ENTERED AT 11:43:37 ON 16 AUG 2005
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FILE 'LIFESCI' ENTERED AT 11:43:37 ON 16 AUG 2005
COPYRIGHT (C) 2005 Cambridge Scientific Abstracts (CSA)

=> s thioredoxin
L1 23701 THIOREDOXIN

=> s inclusion (a)bod?
L2 48386 INCLUSION (A) BOD?

=> s l1 and l2
L3 226 L1 AND L2

=> s "inclusionm partner protein"
<-----User Break----->

SEARCH ENDED BY USER
SEARCH ENDED BY USER

=> s "inclusion partner protein"
L4 2 "INCLUSION PARTNER PROTEIN"

=> d 1-2 ibib ab

L4: ANSWER 1 OF 2 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on STN
ACCESSION NUMBER: 2004:219988 BIOSIS
DOCUMENT NUMBER: PREV200400223055
TITLE: Methods for production of proteins.
AUTHOR(S): Chatterjee, Deb [Inventor, Reprint Author]; Longo, Mary
[Inventor]; Flynn, Elizabeth [Inventor]; Oberfelder, Robert
[Inventor]
CORPORATE SOURCE: North Potomac, MD, USA
ASSIGNEE: Invitrogen Corporation, Frankfurt am Main, DE,
USA
PATENT INFORMATION: US 6703484 20040309
SOURCE: Official Gazette of the United States Patent and Trademark
Office Patents, (Mar 9 2004) Vol. 1280, No. 2.
<http://www.uspto.gov/web/menu/patdata.html>. e-file.
ISSN: 0098-1133 (ISSN print).
DOCUMENT TYPE: Patent
LANGUAGE: English
ENTRY DATE: Entered STN: 21 Apr 2004
Last Updated on STN: 21 Apr 2004

AB The current invention provides methods for producing a polypeptide as inclusion bodies in bacterial host cells. The present methods are carried out by forming a gene construct comprising the genetic sequence encoding a polypeptide operatively linked to that of an **inclusion partner protein**, such as E. coli thioredoxin or a modified E. coli thioredoxin, such that host cells comprising the gene construct produce the polypeptide as intracellular inclusion bodies. The methods of the present invention facilitate the rapid isolation and purification of recombinant proteins. In addition, the present methods may be useful for producing polypeptides or proteins which are small and are typically difficult to express, as well as those proteins that are toxic to host cells such as E. coli. The present invention also provides plasmids, vectors and host cells to be used in the present invention for production of polypeptides, and methods of production of polypeptides using these vectors and host cells. The invention further provides methods for producing protein molecular weight ladders for use in protein gel electrophoresis, as well as proteins and protein molecular weight ladders produced by these methods.

L4 ANSWER 2 OF 2 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1998:493673 HCAPLUS
DOCUMENT NUMBER: 129:118770
TITLE: Methods for production of recombinant proteins as inclusion bodies in bacterial host cells
INVENTOR(S): Chatterjee, Deb; Longo, Mary; Flynn, Elizabeth; Oberfelder, Robert
PATENT ASSIGNEE(S): Life Technologies, Inc., USA
SOURCE: PCT Int. Appl., 86 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9830684	A1	19980716	WO 1998-US492	19980108
W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE,				

DK, EE, ES, FI, GB, GE, GH, GM, GW, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
RW: GH, GM, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG

AU 9860209	A1	19980803	AU 1998-60209	19980108
EP 963435	A1	19991215	EP 1998-903438	19980108
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
JP 2001512306	T2	20010821	JP 1998-531177	19980108
US 2002065392	A1	20020530	US 1998-4068	19980108
US 6703484	B2	20040309		
US 2004204563	A1	20041014	US 2003-728766	20031208
PRIORITY APPLN. INFO.:			US 1997-34658P	P 19970108
			US 1998-4068	A1 19980108
			WO 1998-US492	W 19980108

AB The current invention provides methods for producing a polypeptide as inclusion bodies in bacterial host cells. The present methods are carried out by forming a gene construct comprising the genetic sequence encoding a polypeptide operatively linked to that of an **inclusion partner protein**, such as Escherichia coli thioredoxin or a modified E. coli thioredoxin, such that host cells comprising the gene construct produce the polypeptide as intracellular inclusion bodies. Addnl. **inclusion partner proteins** include gene 32 protein of bacteriophage T4, KpnI methylase, and E. coli Dead-Box protein. The methods of the present invention facilitate the rapid isolation and purification of recombinant proteins. In addition, the present methods may be useful for producing polypeptides or proteins which are small and are typically difficult to express, as well as those proteins that are toxic to host cells such as E. coli. The present invention also provides plasmids, vectors and host cells to be used in the present invention for production of polypeptides, and methods of production of polypeptides using these vectors and host cells. The desired protein can be released from inclusion bodies by chemical cleavage (CNBr or hydroxylamine) or enzymic cleavage (factor Xa, thrombin, enterokinase). The invention further provides methods for producing protein mol. weight ladders for use in protein gel electrophoresis, as well as proteins and protein mol. weight ladders produced by these methods.

REFERENCE COUNT: 16 THERE ARE 16 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

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FILE 'MEDLINE, EMBASE, BIOSIS, BIOTECHDS, SCISEARCH, HCAPLUS, NTIS, LIFESCI' ENTERED AT 11:43:37 ON 16 AUG 2005

L1 23701 S THIOREDOXIN
L2 48386 S INCLUSION (A)BOD?
L3 226 S L1 AND L2
L4 2 S "INCLUSION PARTNER PROTEIN"

=> s insoluble

L5 282010 INSOLUBLE

=> s l3 and l5

L6 55 L3 AND L5

=> dup rem 16

PROCESSING COMPLETED FOR L6

L7 20 DUP REM L6 (35 DUPLICATES REMOVED)

=> d 1-20 ibib ab

L7 ANSWER 1 OF 20 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on STN
DUPLICATE 1

ACCESSION NUMBER: 2004:458566 BIOSIS

DOCUMENT NUMBER: PREV200400458184

TITLE: High-level expression of soluble human beta-defensin-2 in
Escherichia coli.

AUTHOR(S): Peng, Li; Xu, Zhinan [Reprint Author]; Fang, Xiangming;
Wang, Fang; Cen, Peilin

CORPORATE SOURCE: Inst BioengnDept Chem Engrn and Biopengn, Zhejiang Univ,
Hangzhou, 310027, China
znxu@zju.edu.cn

SOURCE: Process Biochemistry, (October 29 2004) Vol. 39, No. 12,
pp. 2199-2205. print.

ISSN: 1359-5113 (ISSN print).

DOCUMENT TYPE: Article

LANGUAGE: English

ENTRY DATE: Entered STN: 24 Nov 2004

Last Updated on STN: 24 Nov 2004

AB Human beta-defensin-2 (hBD2) is a short cationic peptide with a broad
antimicrobial spectrum. The coding sequence of hBD2 was cloned into
pET-32a (+) to construct a fusion expression plasmid, pET32-hBD2, which
was transformed into E. coli BL21 (DE3) for expression. The cultivation
parameters of the expression vector harboring strain were optimized to
produce the fusion protein in soluble form efficiently and to avoid the
formation of **insoluble inclusion bodies**.
The optimal conditions were determined as following: cultivation at 28
degreeC in MBL medium, induction at middle stage of exponential growth
with 0.8 mM IPTG, and post-induction expression for 8 h. Under the above
conditions, a high percentage of the target fusion protein (gtoreq92.3%)
was expressed in soluble form and the volumetric productivity of soluble
fusion protein reached 1.3 g/l. The culture process was successfully
scaled up in a 10l bench-top fermentor. Copyright 2003 Elsevier Ltd. All
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L7 ANSWER 2 OF 20 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on STN
DUPLICATE 2

ACCESSION NUMBER: 2005:31911 BIOSIS

DOCUMENT NUMBER: PREV200500031767

TITLE: Improving soluble expression of beta-galactosidase in
Escherichia coli by fusion with **thioredoxin**.

AUTHOR(S): Nam, E. S.; Jung, H. J.; Ahn, J. K. [Reprint Author]

CORPORATE SOURCE: Dept Agr Sci, Korea Natl Open Univ, Seoul, 110791, South
Korea
ajk@knou.ac.kr

SOURCE: Asian-Australasian Journal of Animal Sciences, (December
2004) Vol. 17, No. 12, pp. 1751-1757. print.

ISSN: 1011-2367 (ISSN print).

DOCUMENT TYPE: Article

LANGUAGE: English

ENTRY DATE: Entered STN: 12 Jan 2005

Last Updated on STN: 12 Jan 2005

AB Recombinant heterologous proteins can be produced as **insoluble**
aggregates partially or perfectly inactive in Escherichia coli. One of
the strategies to improve the solubility of recombinant proteins is fusion
with a partner that is excellent in producing soluble fusion proteins. To
improve the production of soluble beta-galactosidase, the gene of Thermus
thermophilus KNOUC112 beta-galactosidase (KNOUC112 beta-gal) was fused
with **thioredoxin** gene, and optimization of its expression in E.

coli TOP10 was performed. KNOUC112 beta-gal in pET-5b was isolated-out, fused with **thioredoxin** gene in pThioHis C, and transformed to E. coli TOP10. The beta-galactosidase fused with **thioredoxin** was produced in E. coli TOP10 as dinner and trimer. The productivity of fusion beta-galactosidase expressed via pThioHis C at 37degreeC was about 5 times higher than that of unfused beta-galactosidase expressed via pET-5b at 37degreeC. **Inclusion body** of beta-galactosidase was formed highly, regardless of the induction by IPTG when KNOUC112 beta-gal was expressed via pET-5b at 37degreeC. Fusion beta-galactosidase expressed at 37degreeC via pThioHis C without the induction by IPTG was soluble, but the induction by IPTG promoted the formation of **inclusion body**. Lowering the incubation temperature for the expression of fusion gene under 25degreeC prevented the formation of **inclusion body**, optimally at 25degreeC. 0.07 mM of IPTG was sufficient for the soluble expression of fusion gene at 25degreeC. The soluble production of *Thermus thermophilus* KNOUC112 beta-galactosidase could be increased about 10 times by fusion with **thioredoxin**, and optimization of incubation temperature and IPTG concentration for induction.

L7 ANSWER 3 OF 20 MEDLINE on STN DUPLICATE 3
 ACCESSION NUMBER: 2004238332 MEDLINE
 DOCUMENT NUMBER: PubMed ID: 15135411
 TITLE: Expression, purification, and in vitro characterization of recombinant salmon insulin-like growth factor-II.
 AUTHOR: Wilkinson Ryan J; Elliott Phillip; Carragher John F; Francis Geoffrey
 CORPORATE SOURCE: School of Biological Sciences, Flinders University, GPO Box 2100, Adelaide, SA 5001, Australia..
 Ryan.Wilkinson@flinders.edu.au
 SOURCE: Protein expression and purification, (2004 Jun) 35 (2) 334-43.
 Journal code: 9101496. ISSN: 1046-5928.
 PUB. COUNTRY: United States
 DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
 LANGUAGE: English
 FILE SEGMENT: Priority Journals
 ENTRY MONTH: 200503
 ENTRY DATE: Entered STN: 20040512
 Last Updated on STN: 20050330
 Entered Medline: 20050329

AB The insulin-like growth factors, IGF-I and IGF-II, are single chain polypeptides, which are structurally related to proinsulin and promote proliferation and differentiation of cells in many vertebrate species. Previous attempts to produce recombinant salmon IGF-II (rsIGF-II) were compromised by low expression levels and co-purification of incorrectly cleaved protein with the authentic recombinant product. In this study, a gene containing the coding region for Atlantic salmon (*Salmo salar*) IGF-II was cloned into a modified pET32a expression vector and transformed into *Escherichia coli* BL21 trxB (DE3) cells. Upon growth and induction (with IPTG) of the transformant, recombinant salmon IGF-II (rsIGF-II) was expressed as an **insoluble**, 28kDa **thioredoxin**.sIGF-II fusion protein linked by a protease cleavage motif (trx.FAHY.sIGF-II) in **inclusion bodies**. The **inclusion bodies** were subsequently solubilized and the fusion protein was purified by Ni-affinity chromatography. Recombinant IGF-II (7.8kDa) was then released from the fusion partner using H64A subtilisin BPN' protease and purified by reversed-phase HPLC. Homogeneity of the final recombinant product was confirmed by N-terminal amino acid sequencing, ion-spray mass spectrometry, SDS-polyacrylamide gel electrophoresis, and analytical reversed-phase HPLC. The biological activity of rsIGF-II was demonstrated in cultured rat L6 myoblasts and was found to be approximately 9- and 5-fold less potent than recombinant human IGF-I and recombinant salmon

IGF-I, respectively, a result similar to that demonstrated previously with other recombinant fish IGF-II's in non-homologous cell lines.

L7 ANSWER 4 OF 20 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2003:777839 HCAPLUS

DOCUMENT NUMBER: 139:272056

TITLE: Expression of recombinant mammalian heparin-binding protein (HBP) as fusion protein in Escherichia coli

INVENTOR(S): Woeldike, Helle Fabricius

PATENT ASSIGNEE(S): Leukotech A/S, Den.

SOURCE: PCT Int. Appl., 64 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2003080660	A2	20031002	WO 2003-DK207	20030326
WO 2003080660	A3	20031218		
W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW			
RW:	GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG			

PRIORITY APPLN. INFO.: DK 2002-477 A 20020327

AB The present invention relates to methods of making heparin-binding protein (HBP) in a recombinant bacterial expression system. In particular, this invention relates to a method for the preparation of an **insol.** fusion protein comprising heparin-binding protein (HBP), a proteolytic cleavage site, and a second polypeptide in recombinant bacterial cells, said fusion protein being accumulated in **inclusion bodies** in the cytoplasm of bacterium after expression. The invention further relates to methods of separation of the expressed HBP from **inclusion bodies** comprising purification of HBP from the second polypeptide and optionally refolding of said HBP. The invention further features the DNA constructs comprising different HBP-fusion proteins. Invention also relates to use of the HBP-fusion protein produced in bacteria for the production of pure HBP and use of the HBP purified from the fusion protein for the preparation of a medicament. The invention provides protein and cDNA sequence of human and pig heparin-binding protein.

L7 ANSWER 5 OF 20

MEDLINE on STN

DUPLICATE 4

ACCESSION NUMBER: 2003471067 MEDLINE

DOCUMENT NUMBER: PubMed ID: 12963350

TITLE: Expression, purification, and characterization of human enteropeptidase catalytic subunit in Escherichia coli.

AUTHOR: Gasparian Marine E; Ostapchenko Valeriy G; Schulga Alexey A; Dolgikh Dmitry A; Kirpichnikov Mikhail P

CORPORATE SOURCE: Laboratory of Protein Engineering, Shemyakin and Ovchinnikov Institute of Bioorganic Chemistry, RAS, 16/10 Miklukho-Maklaya, 117997 GSP, Moscow, Russia.. marine@nmr.ru

SOURCE: Protein expression and purification, (2003 Sep) 31 (1) 133-9.

Journal code: 9101496. ISSN: 1046-5928.

PUB. COUNTRY: United States
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200406
ENTRY DATE: Entered STN: 20031010
Last Updated on STN: 20040610
Entered Medline: 20040609

AB Enteropeptidase (synonym: enterokinase, EC 3.4.21.9) is a heterodimeric serine protease of the intestinal brush border that activates trypsinogen by highly specific cleavage of the trypsinogen activation peptide following the sequence (Asp)(4)-Lys. The DNA sequence encoding the light chain (catalytic subunit) of human enteropeptidase (GenBank Accession Number U09860) was synthesized from 26 oligonucleotides by polymerase chain reaction and cloned into plasmid pET-32a downstream to the gene of fusion partner **thioredoxin** immediately after the DNA sequence encoding enteropeptidase recognition site. The fusion protein **thioredoxin**/human enteropeptidase light chain was expressed in Escherichia coli BL21(DE3) strain in both soluble and **insoluble** forms. The soluble recombinant fusion protein failed to undergo autocatalytic cleavage and activation; however, autocatalytic cleavage and activation of recombinant human enteropeptidase light chain (L-HEP) were achieved by solubilization and renaturation of the fusion protein from **inclusion bodies** and the active L-HEP was purified on agarose-linked soybean trypsin inhibitor. The purified L-HEP cleaved the synthetic peptide substrate Gly-Asp-Asp-Asp-Lys-beta-naphthylamide with kinetic parameters $K(m)=0.16$ mM and $k(cat)=115$ s⁻¹ and small ester Z-Lys-SBzl with $K(m)=140$ microM, $k(cat)=133$ s⁻¹. L-HEP associated with soybean trypsin inhibitor slowly and small ester Z-Lys-SBzl cleavage was inhibited with $K(i)(*)=2.3$ nM. L-HEP digested **thioredoxin**/human epidermal growth factor fusion protein five times faster than equal activity units of bovine recombinant light chain (EKMax, Invitrogen) at the same conditions.

L7 ANSWER 6 OF 20 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2003:294419 HCAPLUS
DOCUMENT NUMBER: 139:302670
TITLE: Novel approach to obtain biologically active recombinant heterodimeric proteins in Escherichia coli
AUTHOR(S): Austin, Corrine
CORPORATE SOURCE: Unilever R and D Colworth, Sharnbrook, MK44 1LQ, UK
SOURCE: Journal of Chromatography, B: Analytical Technologies in the Biomedical and Life Sciences (2003), 786(1-2), 93-107
CODEN: JCBAAI; ISSN: 1570-0232
PUBLISHER: Elsevier Science B.V.
DOCUMENT TYPE: Journal
LANGUAGE: English

AB The strategy described in this paper provides a novel approach for recombinant expression of heterodimeric proteins, and is especially suitable for

the production of proteins whose characteristics lead to aggregation in E. coli expression systems. Pheromaxin, a steroid-binding protein isolated from boar saliva, is a heterodimeric protein consisting of 10 + 103 rel. mol. mass units (pheromaxin A) and 8 + 103 rel. mol. mass units (pheromaxin C) subunits. Expression of pheromaxin subunits in E. coli resulted in extensive **insol.** aggregation. The difficulty faced in obtaining soluble recombinant pheromaxin subunits was clearly evident when native pheromaxin immediately formed aggregates when it was separated into its individual subunits. An increase in soluble pheromaxin expression in E. coli was obtained when the subunits were expressed as fusion proteins with **thioredoxin**. Pheromaxin genes were inserted sep. into pET32a+ vectors at the NcoI site, resulting in

thioredoxin, S-Tag and His-Tag coding regions being upstream of the inserted gene. Soluble pheromaxein A-**thioredoxin** (pheroA/trx) and pheromaxein C-**thioredoxin** (pheroC/trx) fusions were purified to homogeneity, using a laboratory scale S-protein agarose affinity column. Cleavage of **thioredoxin** under normal conditions was not feasible due to the extensive aggregation problems experienced when pheromaxein subunits exist sep. PheroA/trx and pheroC/trx were therefore mixed together and cleaved from **thioredoxin** simultaneously so that pheromaxein subunits were given an instant opportunity to associate under oxido-shuffling conditions. The glutathione oxido-shuffling system allowed the disulfide bridges between pheromaxein A and C to rearrange until the correct native structure was formed. This novel approach combines affinity purification with a coupled fusion protein-cleavage and refolding technique.

REFERENCE COUNT: 11 THERE ARE 11 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L7 ANSWER 7 OF 20 MEDLINE on STN DUPLICATE 5
 ACCESSION NUMBER: 2000200247 MEDLINE
 DOCUMENT NUMBER: PubMed ID: 10733885
 TITLE: Expression of human cardiac-specific homeobox protein in Escherichia coli.
 AUTHOR: Zhao J H; Xu Z; Hua Z C
 CORPORATE SOURCE: State Key Laboratory of Pharmaceutical Biotechnology, Nanjing University, Nanjing, 210093, People's Republic of China.
 SOURCE: Protein expression and purification, (2000 Apr) 18 (3) 316-9.
 Journal code: 9101496. ISSN: 1046-5928.
 PUB. COUNTRY: United States
 DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
 LANGUAGE: English
 FILE SEGMENT: Priority Journals
 ENTRY MONTH: 200006
 ENTRY DATE: Entered STN: 20000616
 Last Updated on STN: 20000616
 Entered Medline: 20000607
 AB Human cardiac-specific homeobox protein cDNA (hCsx) was cloned into expression plasmid pET32a and fused with Escherichia coli **thioredoxin** (Trx). The Trx-Csx fusion protein was under the control of bacteriophage T7 promoter. When expressed in E. coli BL21(DE3), about half of the recombinant Trx-Csx products existed in the form of **insoluble inclusion bodies**. When coexpressed with human protein disulfide isomerase, more than 90% of Trx-Csx products accumulated in the soluble form in the cell lysate. The recombinant Csx fusion protein was purified by one-step metal-chelating affinity chromatography.
 Copyright 2000 Academic Press.

L7 ANSWER 8 OF 20 MEDLINE on STN DUPLICATE 6
 ACCESSION NUMBER: 2000211255 MEDLINE
 DOCUMENT NUMBER: PubMed ID: 10744952
 TITLE: High-level expression of tetanus toxin fragment C-**thioredoxin** fusion protein in Escherichia coli.
 AUTHOR: Ribas A V; Ho P L; Tanizaki M M; Raw I; Nascimento A L
 CORPORATE SOURCE: Center of Biotechnology, Instituto Butantan, Av. Vital Brasil, 1500, CEP 05503-900, Sao Paulo, SP, Brazil.
 SOURCE: Biotechnology and applied biochemistry, (2000 Apr) 31 (Pt 2) 91-4.
 Journal code: 8609465. ISSN: 0885-4513.
 PUB. COUNTRY: ENGLAND: United Kingdom
 DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
 LANGUAGE: English

FILE SEGMENT: Priority Journals
 ENTRY MONTH: 200005
 ENTRY DATE: Entered STN: 20000606
 Last Updated on STN: 20000606
 Entered Medline: 20000525

AB An insert of Clostridium tetani DNA corresponding to fragment C of tetanus toxin was amplified by PCR. This 1.4 kb fragment was cloned into the high-expression vector pET32a, under control of the T7 promoter. Expression of this plasmid in Escherichia coli BL21(DE3) resulted in the production of a fusion protein (approximately 62 kDa) consisting of 112 amino acids of **thioredoxin** and approximately 450 amino acids of fragment C. This fusion protein was recognized by anti-tetanus toxoid antiserum in an ELISA and on immunoblots. The recombinant fragment-C-**thioredoxin** protein was purified significantly in one step by Ni(2+)-chelate Sepharose, the final yield being approximately 35 mg/l. Immunization of animals with the recombinant protein produced antibodies that were able to recognize the tetanus toxin. By using this gene-fusion expression system we produced soluble fragment C of tetanus toxin in a high yield, preventing many problems inherent in the use of other expression systems that produce either **insoluble** fragment C in **inclusion bodies**, or a soluble form, but in low yield, using E. coli as the expression host.

L7 ANSWER 9 OF 20 HCAPLUS COPYRIGHT 2005 ACS on STN
 ACCESSION NUMBER: 1999:194277 HCAPLUS
 DOCUMENT NUMBER: 130:219149
 TITLE: Method for producing heterologous proteins as soluble fusion proteins in recombinant cells
 INVENTOR(S): Harrison, Roger G.; Davis, Gregory D.
 PATENT ASSIGNEE(S): The Board of Regents of the University of Oklahoma, USA
 SOURCE: PCT Int. Appl., 47 pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9913091	A1	19990318	WO 1998-US19101	19980914
W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, HR, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
US 5989868	A	19991123	US 1998-149725	19980908
AU 9894820	A1	19990329	AU 1998-94820	19980914
US 6207420	B1	20010327	US 1999-448224	19991123
PRIORITY APPLN. INFO.:			US 1997-58698P	P 19970912
			US 1998-88699P	P 19980609
			US 1998-149725	A 19980908
			US 1998-149725	A 19980908
			WO 1998-US19101	W 19980914

AB A fusion protein having a carrier protein which is preferably an E. coli protein having a predicted solubility probability of at least 90 % fused to
 a target heterologous peptide or protein, and a host cell (especially E. coli) transformed with, or having integrated into its genome, a chimeric gene encoding said fusion protein, are disclosed. An objective of the present

invention is to improve the purification process of recombinant fusion proteins

by avoiding the initial expression of these fusion proteins in E. coli as **insol. inclusion bodies**. The methods and compns. of the present invention permit the production of large amts. of heterologous peptides or proteins in a stable, soluble form in certain host cells which normally express limited amts. of such soluble peptides or proteins. The present invention produces fusion proteins which retain the desirable characteristics of a carrier protein (i.e., stability, solubility, and a high level of expression). Thus, human interleukin 3 was produced in E. coli as a fusion protein with "2X-YgjD" (i.e., the YgjD protein fused to itself), with NusA, with GrpE, with bacterioferritin, and with **thioredoxin**. The fusion proteins were >97, 86, 72, 72, and 54% soluble, resp.

REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L7 ANSWER 10 OF 20 MEDLINE on STN DUPLICATE 7
ACCESSION NUMBER: 2000052947 MEDLINE
DOCUMENT NUMBER: PubMed ID: 10586500
TITLE: Heterologous expression and characterization of endoglucanase I (EGI) from Trichoderma viride HK-75.
AUTHOR: Kwon I; Ekino K; Goto M; Furukawa K
CORPORATE SOURCE: Department of Agricultural Chemistry, Kyushu University, Fukuoka, Japan.
SOURCE: Bioscience, biotechnology, and biochemistry, (1999 Oct) 63 (10) 1714-20.
Journal code: 9205717. ISSN: 0916-8451.
PUB. COUNTRY: Japan
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200002
ENTRY DATE: Entered STN: 20000218
Last Updated on STN: 20000218
Entered Medline: 20000207

AB Endoglucanase I (EGI) secreted from Trichoderma viride HK-75 has a unique transglycosylation activity. The genomic and cDNA clones encoding EGI (egl1) of T. viride HK-75 were isolated and characterized. The coding region of egl1, composed of 1392 bp, was found to encode a polypeptide of 464 amino acids that has extensive similarity (93.8%) with EGI of T. reesei. Expression of the egl1 gene in E. coli as a fusion protein (with N-terminal **thioredoxin** and C-terminal histidine tag) led to a large production of a nonglycosylated protein of 62.5 kDa. However, it formed an **insoluble inclusion body**. Upon denaturation with 8 M urea followed by dialysis and successive purification, the enzymatically active recombinant EGI (rEGI) was obtained at a level as high as 18.3 mg/l of 1,000 ml of culture. The rEGI had 67.8% activity for carboxymethyl cellulose (CMC), compared to native EGI (nEGI). The optimum pH and optimum temperature of rEGI were lower than those of nEGI by 0.5 and 5 degrees C, respectively. The rEGI also had narrower CMCase ranges than nEGI in pH and temperature stabilities. However, the catalytic and transglycosylation abilities against cellotriase of rEGI were comparable to those of nEGI. These results suggest that the glycosylation is important for the stabilities of EGI but not critical for the essential enzymatic capacity.

L7 ANSWER 11 OF 20 SCISEARCH COPYRIGHT (c) 2005 The Thomson Corporation on STN
ACCESSION NUMBER: 1999:624940 SCISEARCH
THE GENUINE ARTICLE: 224PT
TITLE: Escherichia coli maltose-binding protein is uncommonly effective at promoting the solubility of polypeptides to

which it is fused

AUTHOR: Kapust R B; Waugh D S (Reprint)

CORPORATE SOURCE: NCI, Frederick Canc Res & Dev Ctr, ABL Basic Res Program, POB B, Frederick, MD 21702 USA (Reprint); NCI, Frederick Canc Res & Dev Ctr, ABL Basic Res Program, Frederick, MD 21702 USA

COUNTRY OF AUTHOR: USA

SOURCE: PROTEIN SCIENCE, (AUG 1999) Vol. 8, No. 8, pp. 1668-1674. ISSN: 0961-8368.

PUBLISHER: COLD SPRING HARBOR LAB PRESS, 1 BUNGTOWN RD, PLAINVIEW, NY 11724 USA.

DOCUMENT TYPE: Article; Journal

LANGUAGE: English

REFERENCE COUNT: 46

ENTRY DATE: Entered STN: 1999
Last Updated on STN: 1999

ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS

AB Although it is usually possible to achieve a favorable yield of a recombinant protein in Escherichia coli, obtaining the protein in a soluble, biologically active form continues to be a major challenge. Sometimes this problem can be overcome by fusing an aggregation-prone polypeptide to a highly soluble partner. To study this phenomenon in greater detail, we compared the ability of three soluble fusion partners-maltose-binding protein (MBP), glutathione S-transferase; (GST), and **thioredoxin** (TRX)-to inhibit the aggregation of six diverse proteins that normally accumulate in an **insoluble** form. Remarkably, we found that MEP is a far more effective solubilizing agent than the other two fusion partners. Moreover, we demonstrated that in some cases fusion to MEP can promote the proper folding of the attached protein into its biologically active conformation. Thus, MBP seems to be capable of functioning as a general molecular chaperone in the context of a fusion protein. A model is proposed to explain how MBP promotes the solubility and influences the folding of its fusion partners.

L7 ANSWER 12 OF 20 MEDLINE on STN

ACCESSION NUMBER: 1999289510 MEDLINE

DOCUMENT NUMBER: PubMed ID: 10360984

TITLE: Expression of a synthetic gene encoding canine milk lysozyme in Escherichia coli and characterization of the expressed protein.

AUTHOR: Koshihara T; Hayashi T; Miwako I; Kumagai I; Ikura T; Kawano K; Nitta K; Kuwajima K

CORPORATE SOURCE: Division of Biological Sciences, Graduate School of Science, Hokkaido University, Kita-ku, Sapporo 060-0810, Japan.

SOURCE: Protein engineering, (1999 May) 12 (5). 429-35. Journal code: 8801484. ISSN: 0269-2139.

PUB. COUNTRY: ENGLAND: United Kingdom

DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)

LANGUAGE: English

FILE SEGMENT: Priority Journals

ENTRY MONTH: 199907

ENTRY DATE: Entered STN: 19990730
Last Updated on STN: 19990730
Entered Medline: 19990721

AB A high-expression plasmid of the canine milk lysozyme, which belongs to the family of calcium-binding lysozymes, was constructed in order to study its physico-chemical properties. Because the cDNA sequence of the protein has not yet been determined, a 400 base-pair gene encoding canine milk lysozyme was first designed on the basis of the known amino acid sequence. The gene was constructed by an enzymatic assembly of 21 chemically synthesized oligonucleotides and inserted into an Escherichia coli expression vector by stepwise ligation. The expression plasmid thus

constructed was transformed into BL21(DE3)/pLysS cells. The gene product accumulated as **inclusion bodies** in an **insoluble** fraction. Recombinant canine milk lysozyme was obtained by purification and refolding of the product and showed the same characteristics in terms of bacteriolytic activity and far- and near-UV circular dichroism spectra as the authentic protein. The NMR spectra of refolded lysozyme were also characteristic of a native globular protein. It was concluded that recombinant canine milk lysozyme was folded into the correct native structure. Moreover, the thermal unfolding profiles of the refolded recombinant lysozyme showed a stable equilibrium intermediate, indicating that the molten globule state of this protein was extraordinarily stable. This expression system of canine milk lysozyme will enable biophysical and structural studies of this protein to be extended.

L7 ANSWER 13 OF 20 MEDLINE on STN DUPLICATE 8
 ACCESSION NUMBER: 1999035447 MEDLINE
 DOCUMENT NUMBER: PubMed ID: 9818087
 TITLE: Fusion expression of human pro-urokinase with E. coli **thioredoxin**.
 AUTHOR: Sun A L; Hua Z C; Yao J; Yang Y H; Yin D Q
 CORPORATE SOURCE: Department of Biochemistry, Nanjing University, People's Republic of China.
 SOURCE: Biochemistry and molecular biology international, (1998 Oct) 46 (3) 479-86.
 Journal code: 9306673. ISSN: 1039-9712.
 PUB. COUNTRY: Australia
 DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
 LANGUAGE: English
 FILE SEGMENT: Priority Journals
 ENTRY MONTH: 199901
 ENTRY DATE: Entered STN: 19990209
 Last Updated on STN: 20000303
 Entered Medline: 19990122

AB Human pro-urokinase (pro-UK) was cloned into plasmid pET32b and fused to the E. coli **thioredoxin** (trxA). When expressed in E. coli AD494(DE3), the fusion protein Trx-pro-UK accumulated as **insoluble inclusion bodies** and amounted to 35% of total cellular proteins. When co-expressed with molecular chaperones human protein disulfide isomerase (PDI) and E. coli GroESL, all the expressed products still existed in the form of **insoluble inclusion bodies**.

L7 ANSWER 14 OF 20 NTIS COPYRIGHT 2005 NTIS on STN
 ACCESSION NUMBER: 1997(18):05240
 NTIS ORDER NUMBER: AD-A325 566/8/XAB
 TITLE: Investigation of the Solubility and Enzymatic Activity of a **Thioredoxin**-Gelatin Fusion Protein.
 Master's thesis.
 AUTHOR: Licata, M. J.
 CORPORATE SOURCE: Texas Univ. at Austin. (043127000 347800)
 NUMBER OF REPORT: AD-A325 566/8/XAB
 96p; May 1997
 CONTROLLED TERM: Dissertation
 COUNTRY: United States
 LANGUAGE: English
 NOTES: Original contains color plates: All DTIC reproductions will be in black and white.
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22161, USA.

NTIS Prices: PC A06/MF A01

GRA&I9720

OTHER SOURCE:

AB A synthetic gene for the ribosome-inactivating protein (RIP), gelonin, was previously engineered and inserted into the pET-21a plasmid under the control of the T7 promoter by researchers at M.D. Anderson Cancer Research Institute in Houston, Texas. Upon induction of Escherichia coli (E. coli) strain BL-21(DE3)pLysS containing this pET-2 1 a/gel plasmid, the resulting gelonin protein forms **insoluble** aggregates, known as **inclusion bodies**, and exhibits no activity under the assay conditions tested. By genetically fusing gelonin to the highly stable and soluble protein, **thioredoxin**, it was thought that there would be an increase in the solubility of gelonin, possibly accompanied by a measurable amount of enzymatic activity.

L7 ANSWER 15 OF 20

MEDLINE on STN

DUPLICATE 9

ACCESSION NUMBER: 97325530 MEDLINE

DOCUMENT NUMBER: PubMed ID: 9181583

TITLE: Manipulating the aggregation and oxidation of human SPARC in the cytoplasm of Escherichia coli.

AUTHOR: Schneider E L; Thomas J G; Bassuk J A; Sage E H; Baneyx F

CORPORATE SOURCE: Department of Chemical Engineering, University of Washington, Seattle 98195, USA.

CONTRACT NUMBER: GM40711 (NIGMS)

P50-DK-47659 (NIDDK)

SOURCE: Nature biotechnology, (1997 Jun) 15 (6) 581-5.

Journal code: 9604648. ISSN: 1087-0156.

PUB. COUNTRY: United States

DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)

LANGUAGE: English

FILE SEGMENT: Priority Journals

ENTRY MONTH: 199708

ENTRY DATE: Entered STN: 19970902

Last Updated on STN: 20000303

Entered Medline: 19970819

AB Human SPARC (secreted protein acidic and rich in cysteine), an extracellular matrix protein containing 14 cysteine residues, was found to partition equally between soluble and **insoluble** cellular fractions when overexpressed in the Escherichia coli cytoplasm. While the growth temperature and medium pH had little effect on **inclusion body** formation, co-overproduction of the dnaKJ operon, but not of the groE operon, suppressed aggregation at the expense of intracellular accumulation. Although both forms of the protein were fully reduced in wild-type cells, 70% to 85% of soluble and **insoluble** SPARC could be converted into oxidized species in a **thioredoxin** reductase (trxB) null mutant following incubation on ice. Approximately 15% to 20% of SPARC exhibited the electrophoretic mobility of the biologically active protein. Overproduction of the dnaKJ operon in trxB cells decreased the formation of disulfide-bonded SPARC multimers in the aggregated material but not in its soluble counterpart. Our results suggest that the activity responsible for disulfide bond formation in trxB mutants acts at the post-translational level and is able to freely diffuse within **inclusion bodies**.

L7 ANSWER 16 OF 20 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1997:230242 HCAPLUS

TITLE: Aggregation and oxidation of sparc in the cytoplasm of wild type and trxB E. coli.

AUTHOR(S): Baneyx, Francois; Schneider, Eleonor L.; Thomas, Jeffrey G.; Bassuk, James A.

CORPORATE SOURCE: Dept. Chemical Engineering, University Washington, Seattle, WA, 98195, USA

SOURCE: Book of Abstracts, 213th ACS National Meeting, San

Francisco, April 13-17 (1997), BIOC-176. American
Chemical Society: Washington, D. C.
CODEN: 64AOAA

DOCUMENT TYPE: Conference; Meeting Abstract

LANGUAGE: English

AB Human SPARC, an extracellular matrix protein containing 14 cysteine residues,

was found to partition equally between soluble and **insol.** cellular fractions when overexpressed in the E. coli cytoplasm. While the growth temperature and medium pH had little effect on **inclusion body** formation, co-overprodn. of the dnaKJ operon, but not of the groE operon, suppressed aggregation at the expense of intracellular accumulation. Although both forms of the protein were fully reduced in wild type cells, 70-85% of soluble and **insol.** SPARC could be converted into oxidized species in a **thioredoxin** reductase (trxB) null mutant following incubation on ice. Approx. 15-20% of SPARC exhibited the electrophoretic mobility of the biol. active protein. Overprodn. of the dnaKJ operon in trxB cells decreased the formation of disulfide-bonded SPARC multimers in the aggregated material, but not in its soluble counterpart. Our results suggest that the activity responsible for disulfide bond formation in trxB mutants acts at the post-translational level and is able to freely diffuse within **inclusion bodies**.

L7 ANSWER 17 OF 20 BIOTECHDS COPYRIGHT 2005 THE THOMSON CORP. on STN

ACCESSION NUMBER: 1997-12126 BIOTECHDS

TITLE: Aggregation and oxidation of SPARC in the cytoplasm of wild-type and trxB Escherichia coli;
human recombinant extracellular matrix protein expression in mutant bacterium **inclusion body**
(conference abstract)

AUTHOR: Baneyx F; Schneider E L; Thomas J G; Bassuk J A

CORPORATE SOURCE: Univ.Washington-Seattle

LOCATION: Depts. of Chemical Engineering and Biological Structure, Box 351750, Seattle, WA 98195, USA.

SOURCE: Abstr.Pap.Am.Chem.Soc.; (1997) 213 Meet., Pt.1, BIOT176

CODEN: ACSRAL

ISSN: 0065-7727

American Chemical Society, 213th ACS National Meeting, San Francisco, CA, 13-17 April, 1997.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Human SPARC, an extracellular matrix protein containing 14 cysteine residues, was found to partition equally between soluble and **insoluble** cellular fractions when overexpressed in the Escherichia coli cytoplasm. While the growth temperature and the medium pH had

little effect on **inclusion body** formation, co-overproduction of the dnaKJ operon, but not of the groE operon, suppressed aggregation at the expense of intracellular accumulation. Although both forms of the protein were fully reduced in wild type cells, 70-85% of SPARC could be converted into oxidized species in a **thioredoxin**-reductase (trxB, EC-1.6.4.5) null mutant following incubation on ice. Approximately 15-20% of SPARC exhibited the electrophoretic mobility of the biologically active protein. Overproduction of the dnaKJ operon in trxB cells decreased the formation of disulfide-bonded SPARC multimers in the aggregated material, but not in its soluble counterpart. The activity responsible for disulfide bond formation in trxB mutants may act at the post-translational level and may be able to freely diffuse within **inclusion bodies**.
(0 ref)

L7 ANSWER 18 OF 20 SCISEARCH COPYRIGHT (c) 2005 The Thomson Corporation on STN

ACCESSION NUMBER: 1995:728859 SCISEARCH
THE GENUINE ARTICLE: TB466
TITLE: INCREASE OF SOLUBILITY OF FOREIGN PROTEINS IN
ESCHERICHIA-COLI BY COPRODUCTION OF THE BACTERIAL
THIOREDOXIN
AUTHOR: YASUKAWA T (Reprint); KANEIISHII C; MAEKAWA T; FUJIMOTO J;
YAMAMOTO T; ISHII S
CORPORATE SOURCE: INST PHYS & CHEM RES, MOLEC GENET LAB, TSUKUBA, IBARAKI
305, JAPAN; UNIV TSUKUBA, INST MED SCI, TSUKUBA, IBARAKI
305, JAPAN; UNIV TOKYO, INST MED SCI, DEPT ONCOL, MINATO
KU, TOKYO 108, JAPAN
COUNTRY OF AUTHOR: JAPAN
SOURCE: JOURNAL OF BIOLOGICAL CHEMISTRY, (27 OCT 1995) Vol. 270,
No. 43, pp. 25328-25331.
ISSN: 0021-9258.
PUBLISHER: AMER SOC BIOCHEMISTRY MOLECULAR BIOLOGY INC, 9650
ROCKVILLE PIKE, BETHESDA, MD 20814.
DOCUMENT TYPE: Note; Journal
FILE SEGMENT: LIFE
LANGUAGE: English
REFERENCE COUNT: 27
ENTRY DATE: Entered STN: 1995
Last Updated on STN: 1995

ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS

AB Eukaryotic proteins are frequently produced in Escherichia coli as **insoluble** aggregates. This is one of the barriers to studies of macromolecular structure. We have examined the effect of coproduction of the E. coli **thioredoxin** (Trx) or E. coli chaperones GroESL on the solubility of various foreign proteins. The solubilities of all eight vertebrate proteins examined including transcription factors and kinases were increased dramatically by coproduction of Trx. Overproduction of E. coli chaperones GroESL increased the solubilities of four out of eight proteins examined. Although the tyrosine kinase Lck that was produced as an **insoluble** form and solubilized by urea treatment had a very low autophosphorylating activity, Lck produced in soluble form by coproduction of Trx had an efficient activity. These results suggest that the proteins produced in soluble form by coproduction of Trx have the native protein conformation. The mechanism by which coproduction of Trx increases the solubility of the foreign proteins is discussed.

L7 ANSWER 19 OF 20 BIOTECHDS COPYRIGHT 2005 THE THOMSON CORP. on STN

ACCESSION NUMBER: 1993-12568 BIOTECHDS
TITLE: Escherichia coli as a host system for gene expression and the
formation of **inclusion bodies**;
avoidance of **inclusion body** formation
by recombinant **thioredoxin** fusion protein
production for e.g. interleukin or macrophage colony
stimulating factor production

AUTHOR: Mazza P
LOCATION: Societa Editoriale Farmaceutica, Via Ausonio 12, Milan 20132,
Italy.
SOURCE: Boll.Chim.Farm.; (1993) 132, 7, 247-51
CODEN: BCFAAI
DOCUMENT TYPE: Journal
LANGUAGE: Italian

AB The use of Escherichia coli as a host system for gene cloning is discussed. The formation of **inclusion bodies** is the most important factor limiting application of this microorganism to the production of human proteins of pharmaceutical interest. In E. coli with a cloned gene under the control of efficient expression sequences it is possible to achieve very high levels of production, where the exogenous protein represents up to 30-40% of the total cellular proteins. However, under such conditions, **inclusion bodies** are formed as

insoluble protein aggregates in the cytoplasm. The formation of **inclusion bodies** does not depend upon the dimensions of the protein, and rarely depends upon the promotor or expression level, but is strongly influenced by the host strain and the growth conditions. A strategy based on gene fusion with **thioredoxin** has resulted in high levels of production of soluble eukaryotic proteins, e.g. interleukin-1 to -6 and macrophage colony stimulating factor, in E. coli. The **thioredoxin** of E. coli is extremely thermostable, allowing protein purification by heat treatment. (5 ref)

L7 ANSWER 20 OF 20 MEDLINE on STN DUPLICATE 10
 ACCESSION NUMBER: 93152129 MEDLINE
 DOCUMENT NUMBER: PubMed ID: 7763371
 TITLE: A **thioredoxin** gene fusion expression system that circumvents **inclusion body** formation in the E. coli cytoplasm.
 AUTHOR: LaVallie E R; DiBlasio E A; Kovacic S; Grant K L; Schendel P F; McCoy J M
 CORPORATE SOURCE: Genetics Institute, Cambridge, MA 02140.
 SOURCE: Bio/technology (Nature Publishing Company), (1993 Feb) 11 (2) 187-93.
 Journal code: 8309273. ISSN: 0733-222X.
 PUB. COUNTRY: United States
 DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
 LANGUAGE: English
 FILE SEGMENT: Biotechnology
 ENTRY MONTH: 199303
 ENTRY DATE: Entered STN: 19950809
 Last Updated on STN: 19950809
 Entered Medline: 19930309

AB We have developed a versatile Escherichia coli expression system based on the use of E. coli **thioredoxin** (trxA) as a gene fusion partner. The broad utility of the system is illustrated by the production of a variety of mammalian cytokines and growth factors as **thioredoxin** fusion proteins. Although many of these cytokines previously have been produced in E. coli as **insoluble** aggregates or "**inclusion bodies**", we show here that as **thioredoxin** fusions they can be made in soluble forms that are biologically active. In general we find that linkage to **thioredoxin** dramatically increases the solubility of heterologous proteins synthesized in the E. coli cytoplasm, and that **thioredoxin** fusion proteins usually accumulate to high levels. Two additional properties of E. coli **thioredoxin**, its ability to be specifically released from the E. coli cytoplasm by osmotic shock or freeze/thaw treatments and its intrinsic thermal stability, are retained by some fusions and provide convenient purification steps. We also find that the active-site loop of E. coli **thioredoxin** can be used as a general site for small peptide insertions, allowing for the high level production of soluble peptides in the E. coli cytoplasm.

=> e chatterjee d/au

E1	12	CHATTERJEE CHIRADIP/AU
E2	43	CHATTERJEE CHITRALEKHA/AU
E3	1046	--> CHATTERJEE D/AU
E4	2	CHATTERJEE D */AU
E5	1	CHATTERJEE D B/AU
E6	6	CHATTERJEE D C/AU
E7	5	CHATTERJEE D D/AU
E8	1	CHATTERJEE D E B/AU
E9	36	CHATTERJEE D J/AU
E10	380	CHATTERJEE D K/AU
E11	54	CHATTERJEE D N/AU

E12 23 CHATTERJEE D P/AU

=> s e3

L8 1046 "CHATTERJEE D"/AU

=> e longo m/au

E1	11	LONGO LUIGIA/AU
E2	6	LONGO LUIZ S JR/AU
E3	646 -->	LONGO M/AU
E4	100	LONGO M A/AU
E5	9	LONGO M B/AU
E6	23	LONGO M C/AU
E7	2	LONGO M CASTELLANI/AU
E8	14	LONGO M D/AU
E9	1	LONGO M D C/AU
E10	17	LONGO M F/AU
E11	17	LONGO M G/AU
E12	15	LONGO M I/AU

=> d e3

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'E3' IS NOT A VALID FORMAT

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REENTER DISPLAY FORMAT FOR ALL FILES (FILEDEFAULT):end

=> s e3

L9 646 "LONGO M"/AU

=> e flynn e/au

E1	1	FLYNN DUANE J/AU
E2	3	FLYNN DUSTIE/AU
E3	272 -->	FLYNN E/AU
E4	53	FLYNN E A/AU
E5	1	FLYNN E B/AU
E6	5	FLYNN E C/AU
E7	9	FLYNN E D/AU
E8	3	FLYNN E E/AU
E9	1	FLYNN E F/AU
E10	11	FLYNN E H/AU
E11	151	FLYNN E J/AU
E12	1	FLYNN E J */AU

=> s e3

L10 272 "FLYNN E"/AU

=> e oberfelder r/au

E1	1	OBERFELD SHELDON M/AU
E2	1	OBERFELDARZT/AU
E3	14 -->	OBERFELDER R/AU
E4	30	OBERFELDER R W/AU
E5	6	OBERFELDER ROBERT/AU
E6	5	OBERFELDER ROBERT W/AU
E7	1	OBERFELDER ROBERT WILLIAM/AU
E8	15	OBERFELL C R/AU

E9 10 OBERFELL CHARLES R/AU
E10 1 OBERFELL CHAS R/AU
E11 73 OBERFELL G G/AU
E12 1 OBERFELL G S/AU

=> s e3-e7

L11 56 ("OBERFELDER R"/AU OR "OBERFELDER R W"/AU OR "OBERFELDER ROBERT"
/AU OR "OBERFELDER ROBERT W"/AU OR "OBERFELDER ROBERT WILLIAM"/A
U)

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(FILE 'HOME' ENTERED AT 11:43:12 ON 16 AUG 2005)

FILE 'MEDLINE, EMBASE, BIOSIS, BIOTECHDS, SCISEARCH, HCAPLUS, NTIS,
LIFESCI' ENTERED AT 11:43:37 ON 16 AUG 2005

L1 23701 S THIOREDOXIN
L2 48386 S INCLUSION (A)BOD?
L3 226 S L1 AND L2
L4 2 S "INCLUSION PARTNER PROTEIN"
L5 282010 S INSOLUBLE
L6 55 S L3 AND L5
L7 20 DUP REM L6 (35 DUPLICATES REMOVED)
E CHATTERJEE D/AU
L8 1046 S E3
E LONGO M/AU
L9 646 S E3
E FLYNN E/AU
L10 272 S E3
E OBERFELDER R/AU
L11 56 S E3-E7

=> s l8 or l9 or l10 or l11

L12 2013 L8 OR L9 OR L10 OR L11

=> s l3 and l12

L13 4 L3 AND L12

=> dup rem l13

PROCESSING COMPLETED FOR L13

L14 3 DUP REM L13 (1 DUPLICATE REMOVED)

=> d 1-3 ibib ab

L14 ANSWER 1 OF 3 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on STN
ACCESSION NUMBER: 2004:219988 BIOSIS
DOCUMENT NUMBER: PREV200400223055
TITLE: Methods for production of proteins.
AUTHOR(S): Chatterjee, Deb [Inventor, Reprint Author]; Longo, Mary
[Inventor]; Flynn, Elizabeth [Inventor]; **Oberfelder,**
Robert [Inventor]
CORPORATE SOURCE: North Potomac, MD, USA
ASSIGNEE: Invitrogen Corporation, Frankfurt am Main, DE,
USA
PATENT INFORMATION: US 6703484 20040309
SOURCE: Official Gazette of the United States Patent and Trademark
Office Patents, (Mar 9 2004) Vol. 1280, No. 2.
<http://www.uspto.gov/web/menu/patdata.html>. e-file.
ISSN: 0098-1133 (ISSN print).
DOCUMENT TYPE: Patent
LANGUAGE: English
ENTRY DATE: Entered STN: 21 Apr 2004
Last Updated on STN: 21 Apr 2004

AB The current invention provides methods for producing a polypeptide as **inclusion bodies** in bacterial host cells. The present methods are carried out by forming a gene construct comprising the genetic sequence encoding a polypeptide operatively linked to that of an inclusion partner protein, such as E. coli **thioredoxin** or a modified E. coli **thioredoxin**, such that host cells comprising the gene construct produce the polypeptide as intracellular **inclusion bodies**. The methods of the present invention facilitate the rapid isolation and purification of recombinant proteins. In addition, the present methods may be useful for producing polypeptides or proteins which are small and are typically difficult to express, as well as those proteins that are toxic to host cells such as E. coli. The present invention also provides plasmids, vectors and host cells to be used in the present invention for production of polypeptides, and methods of production of polypeptides using these vectors and host cells. The invention further provides methods for producing protein molecular weight ladders for use in protein gel electrophoresis, as well as proteins and protein molecular weight ladders produced by these methods.

L14 ANSWER 2 OF 3 BIOTECHDS COPYRIGHT 2005 THE THOMSON CORP. on STN
DUPLICATE 1

ACCESSION NUMBER: 1998-09126 BIOTECHDS

TITLE: Production of polypeptides as **inclusion bodies**;
recombinant protein preparation by plasmid pTrc99A or
plasmid pTrxfus vector-mediated **thioredoxin**
expression in Escherichia coli **inclusion**
body

AUTHOR: Chatterjee D; Longo M; Flynn E;
Oberfelder R

PATENT ASSIGNEE: Life-Technol.

LOCATION: Rockville, MD, USA.

PATENT INFO: WO 9830684 16 Jul 1998

APPLICATION INFO: WO 1998-US492 8 Jan 1998

PRIORITY INFO: US 1997-34658 8 Jan 1997

DOCUMENT TYPE: Patent

LANGUAGE: English

OTHER SOURCE: WPI: 1998-399134 [34]

AB A new method for the preparation of a protein in the form of an **inclusion body** involves: obtaining a host cell (e.g. Escherichia coli) containing a first DNA sequence encoding the protein linked to a second DNA sequence encoding an inclusion partner (**thioredoxin** or modified **thioredoxin**), forming a gene fusion construct (plasmid pTrcp1-monomer or pTrxA-concat); and culturing the cell to favor production of the protein as **inclusion bodies**. Also new are: vector plasmid pTrc99A and plasmid pTrxfus containing the construct; a host cell containing the vector; making a protein mol.weight ladder composition by obtaining one or more DNA sequences

encoding proteins of different mol.weight values, transforming host cells with the DNA, culturing the cells to favor production of each protein, and isolating each protein; and making one or more stained proteins by incubating the proteins with one or more protein-binding dyes under incubation conditions to complex the proteins with the dyes. The methods may be used to prepare a fragment of the gene-32 protein of phage T4, a fragment of KpnI-methylase or a fragment of E. coli Dead-Box protein or **thioredoxin**. (84pp)

L14 ANSWER 3 OF 3 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on STN

ACCESSION NUMBER: 1997:421271 BIOSIS

DOCUMENT NUMBER: PREV199799720474

TITLE: Protein expression by inclusion.

AUTHOR(S): Oberfelder, R. W.; Flynn, E.;

SOURCE: Chatterjee, D.
FASEB Journal, (1997) Vol. 11, No. 9, pp. A1200.
Meeting Info.: 17th International Congress of Biochemistry
and Molecular Biology in conjunction with the Annual
Meeting of the American Society for Biochemistry and
Molecular Biology. San Francisco, California, USA. August
24-29, 1997.
CODEN: FAJOEC. ISSN: 0892-6638.
DOCUMENT TYPE: Conference; (Meeting)
Conference; Abstract; (Meeting Abstract)
LANGUAGE: English
ENTRY DATE: Entered STN: 8 Oct 1997
Last Updated on STN: 8 Oct 1997

=> d his

(FILE 'HOME' ENTERED AT 11:43:12 ON 16 AUG 2005)

FILE 'MEDLINE, EMBASE, BIOSIS, BIOTECHDS, SCISEARCH, HCAPLUS, NTIS,
LIFESCI' ENTERED AT 11:43:37 ON 16 AUG 2005

L1 23701 S THIOREDOXIN
L2 48386 S INCLUSION (A)BOD?
L3 226 S L1 AND L2
L4 2 S "INCLUSION PARTNER PROTEIN"
L5 282010 S INSOLUBLE
L6 55 S L3 AND L5
L7 20 DUP REM L6 (35 DUPLICATES REMOVED)
E CHATTERJEE D/AU
L8 1046 S E3
E LONGO M/AU
L9 646 S E3
E FLYNN E/AU
L10 272 S E3
E OBERFELDER R/AU
L11 56 S E3-E7
L12 2013 S L8 OR L9 OR L10 OR L11
L13 4 S L3 AND L12
L14 3 DUP REM L13 (1 DUPLICATE REMOVED)

10/728,766

	L #	Hits	Search Text
1	L1	1	"6703484".pn.
2	L2	3	"inclusion partner protein"
3	L3	1	l1 and l2
4	L4	5189	thioredoxin
5	L5	2	incusion adj bod\$3
6	L6	6782	inclusion adj bod\$3
7	L7	660	l4 and l6
8	L8	34068 1	fus\$3
9	L9	640	l7 and l8
10	L10	31747	CHATTERJEE LONGO FLYNN OBERFELDER
11	L11	41	l7 and l10

	Issue Date	Pages	Document ID	Title
1	20050811	8	US 20050175582 A1	Non-antigenic toxin-conjugate and fusion protein of internalizing receptor system
2	20050721	72	US 20050159590 A1	Variants of interleukin-1 receptor antagonist: compositions and uses thereof
3	20050714	41	US 20050153327 A1	Human ataxin-1-like polypeptide IMX97018
4	20050707	238	US 20050150000 A1	Nucleic acid sequences encoding type III tenebrio antifreeze proteins and method for assaying activity
5	20050707	21	US 20050148037 A1	Method for examining WT1-related disease
6	20050707	273	US 20050148016 A1	Novel human G-protein coupled receptor, HGPRBMY29sv1 polypeptides
7	20050630	77	US 20050143386 A1	Diagnosis and management of infection caused by Chlamydia
8	20050630	86	US 20050142620 A1	Compositions and methods for the therapy and diagnosis of lung cancer
9	20050616	351	US 20050130286 A1	POLYNUCLEOTIDES ENCODING NOVEL HUMAN PHOSPHATASES
10	20050616	37	US 20050130269 A1	Fusion proteins
11	20050616	34	US 20050130259 A1	Expression vector, host, fused protein, process for producing fused protein and process for producing protein

12	20050609	20	US 20050124790 A1	Process for preparation of polypeptides of interest from fusion polypeptides
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	Issue Date	Pages	Document ID	Title
13	20050609	31	US 20050124064 A1	Antimicrobial polypeptides from pseudoplectania nigrella
14	20050602	25	US 20050119462 A1	Expression vectors and promoters for heterologous gene expression
15	20050602	49	US 20050118729 A1	Microarrays of cellulose binding chimeric proteins and methods of use thereof
16	20050602	156	US 20050118632 A1	Polynucleotides and polypeptides encoding a novel metalloprotease, Protease-40b
17	20050526	66	US 20050112706 A1	Diagnostic and prognostic methods for prostate cancers
18	20050519	34	US 20050106681 A1	Enhanced solubility of recombinant proteins
19	20050519	126	US 20050106597 A1	Staphylococcus aureus polynucleotides and polypeptides
20	20050505	82	US 20050095592 A1	Identification of ovarian cancer tumor markers and therapeutic targets
21	20050428	27	US 20050089956 A1	Process for producing alpha 2,3/ alpha 2,8-sialyltransferase and sialic acid-containing complex sugar
22	20050421	32	US 20050085624 A1	Method and device
23	20050414	106	US 20050080232 A1	Alzheimer's disease secretase, app substrates therefor, and uses therefor
24	20050414	58	US 20050079575 A1	Human receptor molecules

25	20050407	64	US 20050076407 A1	Plant defensin polynucleotides and methods of use thereof
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	Issue Date	Pages	Document ID	Title
26	20050407	45	US 20050074853 A1	Recombinant MHC molecules useful for manipulation of antigen-specific T-cells
27	20050407	76	US 20050074851 A1	Vesicle associated proteins
28	20050407	51	US 20050074756 A1	FALP proteins
29	20050317	74	US 20050059109 A1	Methods and compositions for polypeptide engineering
30	20050317	123	US 20050059070 A1	Human single nucleotide polymorphisms in ION channels and other proteins
31	20050303	157	US 20050048620 A1	Polynucleotides encoding a novel human neuronal cell adhesion protein, BGS-28, and variants thereof
32	20050303	132	US 20050048610 A1	Human transport proteins
33	20050303	102	US 20050048572 A1	Methods and compositions for increasing antibody production
34	20050224	79	US 20050042738 A1	Carbohydrate-associated proteins
35	20050224	55	US 20050042690 A1	Diagnosis and management of infection caused by chlamydia
36	20050224	291	US 20050042623 A1	Systems for capture and analysis of biological particles and methods using the systems
37	20050210	169	US 20050033018 A1	Receptors and membrane-associated proteins
38	20050210	258	US 20050032166 A1	Polynucleotides encoding novel adiponectin receptor variants

	Issue Date	Pages	Document ID	Title
39	20050210	398	US 20050031634 A1	Compositions and methods for the therapy and diagnosis of ovarian cancer
40	20050203	88	US 20050026256 A1	Alzheimer's disease secretase
41	20050203	266	US 20050026191 A1	Polynucleotides encoding novel guanylate binding proteins (GBP's)
42	20050127	29	US 20050020528 A1	Chemokines with amino-terminal modifications
43	20050127	39	US 20050019829 A1	Protein/solubility folding assessed by structural complementation
44	20050127	37	US 20050019815 A1	Mammalian selenoprotein differentially expressed in tumor cells
45	20050120	79	US 20050014224 A1	GITR ligand and GITR ligand-related molecules and antibodies and uses thereof
46	20050120	148	US 20050014177 A1	Human sterol response element binding protein 1 (SREBP1) single nucleotide polymorphisms
47	20050120	225	US 20050013825 A1	Vaccine containing the catalytic subunit of telomerase for treating cancer
48	20050106	15	US 20050003478 A1	Process for producing beta-1, 3-n-acetylglucosamine transferase and n-acetylglucosamine-containing composite saccharide
49	20050106	70	US 20050003447 A1	Human cytoskeleton associated proteins

	Issue Date	Pages	Document ID	Title
50	20050106	71	US 20050003416 A1	Novel modified corin molecules having substitute activation sequences and uses thereof
51	20041230	91	US 20040268425 A1	Soluble hyaluronidase glycoprotein (SHASEGP), process for preparing the same, uses and pharmaceutical compositions comprising thereof
52	20041230	167	US 20040265890 A1	Novel human leucine-rich repeat containing protein expressed predominately in small intestine, HLRRS11
53	20041223	36	US 20040258694 A1	Hepatitis C receptor protein CD81
54	20041216	131	US 20040254350 A1	Immune response associated proteins
55	20041216	117	US 20040253701 A1	Protein and peptide fragments from mouse telomerase reverse transcriptase
56	20041216	16	US 20040253670 A1	Process for producing alpha1,4-galactosyltransferase and galactose-containing complex sugar
57	20041216	82	US 20040253578 A1	Dynamic action reference tools
58	20041209	67	US 20040248253 A1	Methods and compositions for polypeptide engineering
59	20041209	144	US 20040248251 A1	Receptors and membrane associated proteins
60	20041209	225	US 20040247613 A1	Treating cancer using a telomerase vaccine

61	20041202	223	US 20040242529 A1	Vector encoding inactivated telomerase for treating cancer
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	Issue Date	Pages	Document ID	Title
62	20041202	271	US 20040241748 A1	Self-assembling arrays and uses thereof
63	20041125	54	US 20040236072 A1	Surface proteins of streptococcus pyogenes
64	20041125	89	US 20040235721 A1	Recombinant proteins of parapoxvirus ovis and pharmaceutical compositions therefrom
65	20041125	86	US 20040235072 A1	Compositions and methods for the therapy and diagnosis of lung cancer
66	20041125	107	US 20040234976 A1	Alzheimer's disease secretase, app substrates therefor, and uses therefor
67	20041118	361	US 20040229315 A1	Polynucleotides encoding novel variants of the TRP channel family member, LTRPC3
68	20041118	146	US 20040229262 A1	Polynucleotide encoding a novel human P2X7 splice variant, HBMYP2X7v
69	20041111	171	US 20040224911 A1	Transporters and ion channels
70	20041111	186	US 20040224408 A1	THAP proteins as nuclear receptors for chemokines and roles in transcriptional regulation, cell proliferation and cell differentiation
71	20041104	35	US 20040219667 A1	Monoclonal antibody for human telomerase catalytic subunit
72	20041104	15	US 20040219594 A1	Esterase, its DNA, its overexpression and production of optically active aryl propionic acids using the same
73	20041104	17	US 20040219553 A1	Alpha-1,2-fucosyltransferase and dna encoding the same

	Issue Date	Pages	Document ID	Title
74	20041104	44	US 20040219529 A1	Compositions and methods of using a synthetic DNase I
75	20041104	109	US 20040219525 A1	Plant polynucleotides encoding novel prenyl proteases
76	20041028	76	US 20040214277 A1	Methods and compositions for polypeptide engineering
77	20041028	84	US 20040214258 A1	Covalent tethering of functional groups to proteins
78	20041021	29	US 20040209323 A1	Protein expression by codon harmonization and translational attenuation
79	20041021	293	US 20040209282 A1	Methods for producing polypeptide-tagged collections and capture systems containing the tagged polypeptides
80	20041014	155	US 20040204576 A1	Polynucleotides encoding a novel human phosphatase, BMY_HPP13
81	20041014	31	US 20040204563 A1	Methods for production of proteins
82	20041014	141	US 20040203014 A1	Neurotransmission-associated proteins
83	20040930	112	US 20040191843 A1	Cell-killing molecules and methods of use thereof
84	20040909	29	US 20040175825 A1	Monoclonal antibody binding to mt4-mmp catalytic domain
85	20040902	199	US 20040171131 A1	Polynucleotides encoding a novel testis-specific tubulin tyrosine-ligase-like protein, BGS42
86	20040902	47	US 20040171112 A1	Oxidation reduction sensitive green fluorescent protein variants

	Issue Date	Pages	Document ID	Title
87	20040902	32	US 20040170976 A1	Solubility reporter gene constructs
88	20040826	75	US 20040167060 A1	Inhibitor and stimulator of stem cell proliferation and uses thereof
89	20040826	27	US 20040166565 A1	Recombinant proteins containing Shiga-like toxin and vascular endothelial growth factor fragments
90	20040826	107	US 20040166507 A1	Alzheimer's disease secretase, app substrates therefor, and uses therefor
91	20040826	175	US 20040166501 A1	Receptors and membrane-associated proteins
92	20040819	13	US 20040161832 A9	Esterase, its DNA, its overexpression and production of optically active aryl propionic acids using the same
93	20040819	40	US 20040161822 A1	Protein having antithrombotic activity and method for producing the same
94	20040812	60	US 20040157771 A1	Rank-ligand-induced sodium/proton antiporter polypeptides
95	20040812	31	US 20040157291 A1	Generation of specific binding partners binding to (poly)peptides encoded by genomic DNA fragments or ESTs
96	20040812	171	US 20040157234 A1	Polynucleotides encoding a novel testis-specific tubulin tyrosine-ligase-like protein, BGS42
97	20040805	72	US 20040152874 A1	Transporter and ion channels

98	20040729	20	US 20040146969 A1	Process for producing recombinant protein and fused protein
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	Issue Date	Pages	Document ID	Title
99	20040729	21	US 20040146923 A1	Tendon-inducing compositions
100	20040722	19	US 20040142414 A1	Production of heterologous protein in a minimal culture medium
101	20040722	44	US 20040142361 A1	Compositions and methods for the therapy and diagnosis of breast cancer
102	20040708	109	US 20040132156 A1	Modified hepsin molecules having a substitute activation sequence and uses thereof
103	20040701	23	US 20040128706 A1	Method for screening for anti-amyloidogenic properties and method for treatment of neurodegenerative disease
104	20040701	46	US 20040127683 A1	Transporters and ion channels
105	20040701	233	US 20040126362 A1	Compositions and methods for WT1 specific immunotherapy
106	20040617	140	US 20040116666 A1	Transporters and ion channels
107	20040617	32	US 20040116662 A1	Antigenic fragment of human T-lymphotropic virus
108	20040610	28	US 20040110260 A1	Recombinant minimal catalytic vanadium haloperoxidases and their uses
109	20040610	124	US 20040109853 A1	Biological active coating components, coatings, and coated surfaces
110	20040603	93	US 20040106125 A1	Neurotransmission-associated proteins

111	20040520	81	US 20040097711 A1	Immunoglobulin superfamily proteins
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	Issue Date	Pages	Document ID	Title
112	20040506	474	US 20040086896 A1	Polynucleotides and polypeptides associated with the NF-kB pathway
113	20040506	97	US 20040086881 A1	Novel human G-protein coupled receptor, BMSOTR, and splice variant thereof
114	20040429	131	US 20040082002 A1	37 staphylococcus aureus genes and polypeptides
115	20040422	48	US 20040077837 A1	Microtubule-associated proteins and tubulins
116	20040422	40	US 20040077066 A1	Purified active HCV NS2/3 protease
117	20040422	31	US 20040076606 A1	Methods of modulating inflammation by administration of interleukin-19 and inhibitors of IL-19 binding
118	20040415	216	US 20040073016 A1	Compositions and methods for the therapy and diagnosis of breast cancer
119	20040415	64	US 20040072740 A1	Directed evolution of enzymes and antibodies
120	20040415	22	US 20040072179 A1	Mutant proteinase with reduced self-cleavage activity and method of purification
121	20040408	295	US 20040068096 A1	Human single nucleotide polymorphisms in organic anion transport and multi-drug resistant proteins
122	20040318	49	US 20040053834 A1	Enzymes involved in glycoprotein and glycolipid metabolism
123	20040318	42	US 20040053425 A1	Quantitative measurement of proteins using genetically-engineered glucose oxidase fusion molecules

	Issue Date	Pages	Document ID	Title
124	20040318	182	US 20040053258 A1	Transporters and ion channels
125	20040318	88	US 20040052810 A1	Abrogen polypeptides, nucleic acids encoding them and methods for using them to inhibit angiogenesis
126	20040318	108	US 20040052777 A1	Kringle polypeptides and methods for using them to inhibit angiogenesis
127	20040311	105	US 20040049010 A1	Transmembrane proteins
128	20040311	148	US 20040048311 A1	Use of collections of binding sites for sample profiling and other applications
129	20040311	107	US 20040048303 A1	Alzheimer's disease secretase, APP substrates therefor, and uses therefor
130	20040311	204	US 20040048302 A1	Novel metalloprotease polypeptide, MP-1
131	20040304	67	US 20040043424 A1	Immunoglobulin superfamily proteins
132	20040304	108	US 20040043408 A1	Alzheimer's disease secretase, APP substrates therefor, and uses therefor
133	20040304	179	US 20040043407 A1	Polynucleotides encoding a novel metalloprotease, MP-1
134	20040226	85	US 20040040054 A1	Plant polynucleotides encoding novel na ⁺ /h ⁺ antiporters
135	20040226	87	US 20040037846 A1	Chlamydia pmp proteins, gene sequences and uses thereof
136	20040219	234	US 20040034196 A1	98 human secreted proteins

	Issue Date	Pages	Document ID	Title
137	20040219	375	US 20040033582 A1	Human single nucleotide polymorphisms
138	20040219	19	US 20040033564 A1	Method for increasing solubility of target protein using RNA-binding protein as fusion partner
139	20040219	311	US 20040033506 A1	Polynucleotides encoding novel human mitochondrial and microsomal glycerol-3-phosphate acyl-transferases and variants thereof
140	20040219	86	US 20040033230 A1	Compositions and methods for the therapy and diagnosis of breast cancer
141	20040212	178	US 20040030098 A1	Polynucleotides encoding novel two splice variants of a human cell surface protein with immunoglobulin folds, BGS5G and BGS5I
142	20040212	37	US 20040029781 A1	Affinity peptides and method for purification of recombinant proteins
143	20040205	73	US 20040025196 A1	POSH nucleic acids, polypeptides and related methods
144	20040205	111	US 20040024192 A1	19 human secreted proteins
145	20040205	140	US 20040024183 A1	Transporters and ion channels
146	20040205	73	US 20040023207 A1	Assays for drug discovery based on microcompetition with a foreign polynucleotide
147	20040205	72	US 20040023206 A1	Methods for chronic disease diagnosis based on microcompetition with a foreign polynucleotide

	Issue Date	Pages	Document ID	Title
148	20040205	63	US 20040022764 A1	Inhibition of microcompetition with a foreign polynucleotide as treatment of chronic disease
149	20040129	290	US 20040018976 A1	Polynucleotide encoding novel human G-protein coupled receptors, and splice variants thereof
150	20040129	413	US 20040018969 A1	Nucleic acids, proteins, and antibodies
151	20040129	155	US 20040018591 A1	Methods and compositions for protein expression and purification
152	20040129	40	US 20040018534 A1	Fused DNA sequence, fused protein expressed from said fused DNA sequence and method for expressing said fused protein
153	20040129	252	US 20040018204 A1	Compositions and methods for WT1 specific immunotherapy
154	20040122	119	US 20040014945 A1	Transporters and ion channels
155	20040122	216	US 20040014093 A1	Polynucleotide encoding a novel cysteine protease of the calpain superfamily, Protease-42
156	20040122	181	US 20040014087 A1	Molecules for diagnostics and therapeutics
157	20040108	241	US 20040005700 A1	Poroplasts
158	20040108	50	US 20040005654 A1	Method of producing polyvalent antigens
159	20040101	40	US 20040002065 A1	PROTEIN/SOLUBILITY FOLDING ASSESSED BY STRUCTURAL COMPLEMENTATION

	Issue Date	Pages	Document ID	Title
160	20040101	50	US 20040001848 A1	Method of producing disease-specific antigens
161	20031225	82	US 20030236209 A1	Compositions and methods for the therapy and diagnosis of lung cancer
162	20031225	33	US 20030235901 A1	Bacterial mycothiol S-conjugate amidase family
163	20031225	229	US 20030235557 A1	Compositions and methods for WT1 specific immunotherapy
164	20031218	144	US 20030232359 A1	Polynucleotide encoding a novel human G-protein coupled receptor, HGPRBMY40 2
165	20031218	240	US 20030232335 A1	Minicell-based screening for compounds and proteins that modulate the activity of signalling proteins
166	20031218	222	US 20030232056 A1	Compositions and methods for the therapy and diagnosis of ovarian cancer
167	20031218	25	US 20030232022 A1	P. gingivalis antigenic composition
168	20031211	54	US 20030228323 A1	Novel group B streptococcus antigens
169	20031204	418	US 20030224486 A1	Polynucleotides and polypeptides associated with the NF-kB pathway
170	20031204	49	US 20030224476 A1	Method of producing transglutaminase reactive compound
171	20031204	170	US 20030224458 A1	Novel human G-protein coupled receptor, HGPRBMY23, expressed highly in kidney
172	20031204	351	US 20030224450 A1	Polynucleotide encoding a novel TRP channel family member, LTRPC3, and splice variants thereof

	Issue Date	Pages	Document ID	Title
173	20031204	240	US 20030224444 A1	Antibodies to native conformations of membrane proteins
174	20031204	182	US 20030224400 A1	Novel human G-protein coupled receptor, HGPRBMY11, and variants thereof
175	20031204	238	US 20030224369 A1	Reverse screening and target identification with minicells
176	20031204	135	US 20030223994 A1	MHC-peptide complex binding ligands
177	20031127	242	US 20030219888 A1	Minicell-based bioremediation
178	20031127	30	US 20030219870 A1	Secretion of proteins with multiple disulfide bonds in bacteria and uses thereof
179	20031127	50	US 20030219857 A1	Method of producing transglutaminase having broad substrate activity
180	20031127	49	US 20030219853 A1	Method of cross-linking a compound
181	20031127	131	US 20030219774 A1	Novel human neurotransmitter transporter
182	20031127	242	US 20030219408 A1	Methods of making pharmaceutical compositions with minicells
183	20031120	144	US 20030216310 A1	Transporters and ion channels
184	20031120	43	US 20030215915 A1	Cytochrome P450 expression in enterobacteria
185	20031120	259	US 20030215458 A1	Compositions and methods for WT1 specific immunotherapy

	Issue Date	Pages	Document ID	Title
186	20031113	78	US 20030211987 A1	Methods and materials relating to stem cell growth factor-like polypeptides and polynucleotides
187	20031113	243	US 20030211599 A1	Minicell-based delivery agents
188	20031113	67	US 20030211514 A1	Apoptosis-inducing factor
189	20031113	99	US 20030211510 A1	Compositions and methods for the therapy and diagnosis of lung cancer
190	20031113	94	US 20030211499 A1	Transporters and ion channels
191	20031113	239	US 20030211086 A1	Minicell-based selective absorption
192	20031106	243	US 20030207833 A1	Pharmaceutical compositions with minicells
193	20031106	221	US 20030206918 A1	Compositions and methods for the therapy and diagnosis of ovarian cancer
194	20031030	59	US 20030204864 A1	Pharmaceutical proteins, human therapeutics, human serum albumin, insulin, native cholera toxic b submitted on transgenic plastids
195	20031030	183	US 20030204070 A1	Polynucleotide encoding a novel methionine aminopeptidase, protease-39
196	20031030	211	US 20030204069 A1	Segments of the human gene for telomerase reverse transcriptase
197	20031030	242	US 20030203481 A1	Conjugated minicells

198	20031030	243	US 20030203411 A1	Methods of minicell- based delivery
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	Issue Date	Pages	Document ID	Title
199	20031030	242	US 20030202937 A1	Minicell-based diagnostics
200	20031023	243	US 20030199089 A1	Membrane to membrane delivery
201	20031023	149	US 20030199088 A1	Minicell-based gene therapy
202	20031023	243	US 20030199005 A1	Solid supports with minicells
203	20031023	240	US 20030198996 A1	Minicell libraries
204	20031023	242	US 20030198995 A1	Forward screening with minicells
205	20031023	173	US 20030198976 A1	Novel human G-protein coupled receptor, HGPRBMY14, related to the orphan GPCR, GPR73
206	20031023	96	US 20030198944 A1	Compositions and methods for reverse transcription of nucleic acid molecules
207	20031023	209	US 20030198622 A1	Compositions and methods for WT1 specific immunotherapy
208	20031016	147	US 20030195346 A1	Secreted protein HEMCM42
209	20031016	77	US 20030195184 A1	Diagnosis and management of infection caused by chlamydia
210	20031016	242	US 20030195163 A1	Polynucleotides encoding three novel human cell surface proteins with leucine rich repeats and immunoglobulin folds, BGS2, 3, and 4 and variants thereof
211	20031016	82	US 20030195151 A1	Biocatalyst inhibitors

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212	20031016	243	US 20030194798 A1	Minicell compositions and methods
213	20031016	22	US 20030194782 A1	Methods for recombinant peptide production
214	20031016	244	US 20030194714 A1	Minicell-based transformation
215	20031009	242	US 20030190749 A1	Minicell-producing parent cells
216	20031009	242	US 20030190683 A1	Minicell-based rational drug design
217	20031009	242	US 20030190601 A1	Target display on minicells
218	20031009	67	US 20030190312 A1	Eukaryotic genes involved in adult lifespan regulation
219	20031002	40	US 20030187187 A1	Polypeptide with appetite regulating activity
220	20031002	75	US 20030186379 A1	Secretion and trafficking molecules
221	20031002	216	US 20030186337 A1	Novel death associated proteins, and THAP1 and PAR4 pathways in apoptosis control
222	20031002	96	US 20030186270 A1	Compositions and methods for reverse transcription of nucleic acid molecules
223	20031002	164	US 20030186267 A1	Novel human leucine-rich repeat domain containing protein, HLLRCR-1
224	20031002	101	US 20030185830 A1	Compositions and methods for the therapy and diagnosis of prostate cancer
225	20030925	122	US 20030181711 A1	Polynucleotide encoding a novel human potassium channel beta-subunit, K+Mbeta1

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226	20030925	57	US 20030180937 A1	Engineering of leader peptides for the secretion of recombinant proteins in bacteria
227	20030925	144	US 20030180812 A1	Novel human leucine-rich repeat containing protein expressed predominately in bone marrow, HLRRBM1
228	20030925	61	US 20030180309 A1	Human B7 polypeptides
229	20030918	325	US 20030175800 A1	D1-C-terminal processing protease: methods for three dimensional structural determination and rational inhibitor design
230	20030911	78	US 20030171348 A1	Diagnosis and management of infection caused by Chlamydia
231	20030911	121	US 20030171275 A1	Transporters and ion channels
232	20030911	37	US 20030170899 A1	Chimeric vectors comprising a phage packaging site and a portion derived from the genome of a eukaryotic virus
233	20030911	13	US 20030170835 A1	Esterase, its DNA, its overexpression and production of optically active aryl propionic acids using the same
234	20030911	31	US 20030170622 A1	GENERATION OF SPECIFIC BINDING PARTNERS BINDING TO (POLY)PEPTIDES ENCODED BY GENOMIC DNA FRAGMENTS OR ESTS
235	20030911	34	US 20030170263 A1	Expression system

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236	20030911	87	US 20030170255 A1	Compositions and methods for the therapy and diagnosis of lung cancer
237	20030904	177	US 20030166540 A1	Polynucleotide encoding a novel human G-protein coupled receptor, HGPRBMY30
238	20030904	242	US 20030166279 A1	Minicell-based transfection
239	20030904	79	US 20030166239 A1	Mammalian osteoregulins
240	20030904	48	US 20030166162 A1	Method for cleavage of fusion proteins
241	20030904	241	US 20030166099 A1	Minicells comprising membrane proteins
242	20030904	294	US 20030166022 A1	Compositions and methods for the therapy and diagnosis of breast cancer
243	20030828	176	US 20030162251 A1	Polynucleotide encoding a novel human potassium channel beta-subunit, K+betaM8
244	20030828	345	US 20030162189 A1	Polynucleotide encoding a novel TRP channel family member, LTRPC3, and splice variants thereof
245	20030828	41	US 20030161839 A1	Recombinant P. falciparum merozoite protein-142 vaccine
246	20030828	42	US 20030161838 A1	Isolation and purification of P. falciparum merozoite protein-142 vaccine
247	20030821	11	US 20030157720 A1	Protein standard for estimating size and mass
248	20030821	175	US 20030157598 A1	Novel human G-protein coupled receptor, HGPRBMY23, expressed highly in kidney

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249	20030821	111	US 20030157525 A1	Novel human G-protein coupled receptor, HGPRBMY31, and variants and methods of use thereof
250	20030821	184	US 20030157514 A1	Polynucleotide encoding a novel pleckstrin homology domain and proline rich domain containing adapter protein, PMN29
251	20030821	37	US 20030157491 A1	HarA polypeptides and nucleic acids, and related methods and uses thereof
252	20030821	99	US 20030157089 A1	Compositions and methods for the therapy and diagnosis of prostate cancer
253	20030814	186	US 20030153063 A1	Novel human G-protein coupled receptor, HGPRBMY11, expressed highly in heart and variants thereof
254	20030814	108	US 20030153045 A1	Methods and compositions for protein expression and purification
255	20030814	103	US 20030152977 A1	Novel human G-protein coupled receptor, HGPRBMY34, and variants and methods of use thereof
256	20030814	148	US 20030152953 A1	Polynucleotide encoding a novel human potassium channel alpha-subunit, K+alphaM2
257	20030814	8	US 20030152555 A1	Enhancing cell-based immunotherapy
258	20030731	331	US 20030144191 A1	Polynucleotide encoding a novel TRP channel family member, TRP-PLIK2, and splice variants thereof

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259	20030731	152	US 20030143706 A1	Novel human leucine-rich repeat containing protein expressed predominately in bone marrow, HLRRBM1
260	20030731	42	US 20030143681 A1	Human ataxin-1-like polypeptide IMX97018
261	20030724	69	US 20030140368 A1	Plant defensins
262	20030724	32	US 20030138973 A1	Microdevices for screening biomolecules
263	20030724	21	US 20030138863 A1	Method for examining wt1-related disease
264	20030724	142	US 20030138795 A1	Polynucleotide encoding a novel human growth factor with homology to epidermal growth factor, BGS-8, expressed highly in immune tissue
265	20030724	75	US 20030138438 A1	Compositions and methods for the therapy and diagnosis of lung cancer
266	20030710	220	US 20030129192 A1	Compositions and methods for the therapy and diagnosis of ovarian cancer
267	20030703	215	US 20030125536 A1	Compositions and methods for the therapy and diagnosis of breast cancer
268	20030703	24	US 20030125515 A1	End-locked five-helix protein
269	20030703	399	US 20030124140 A1	Compositions and methods for the therapy and diagnosis of ovarian cancer
270	20030626	33	US 20030119094 A1	Solubility reporter gene constructs

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271	20030626	55	US 20030119046 A1	Human fatty acid beta-oxidation enzymes
272	20030619	29	US 20030114377 A1	Inhibition therapy for septic shock with mutant CD14
273	20030619	316	US 20030114373 A1	Polynucleotide encoding a novel cysteine protease of the calpain superfamily, CAN-12, and variants thereof
274	20030619	143	US 20030114371 A1	Polynucleotide encoding a novel human potassium channel beta-subunit, K+betaM3
275	20030619	185	US 20030114354 A1	Polynucleotide encoding a novel potassium channel with homology to the ether-a-go-go family, HEAG2
276	20030619	322	US 20030113726 A1	Human single nucleotide polymorphisms
277	20030612	206	US 20030109021 A1	Polynucleotide encoding a novel metalloprotease highly expressed in the testis, MMP-29
278	20030612	30	US 20030108991 A1	Immobilization of keratinase for proteolysis and keratinolysis
279	20030612	65	US 20030108521 A1	Adenovirus protein IX, its domains involved in capsid assembly, transcriptional activity and nuclear reorganization
280	20030605	73	US 20030106090 A1	Materials and methods for the alteration of enzyme and acetyl CoA levels in plants
281	20030605	151	US 20030105297 A1	Secreted protein HEMCM42

282	20030605	8	US 20030104628 A1	Novel method for enhancing solubility of recombinant protein products in E. coli
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283	20030605	53	US 20030104570 A1	Triple fusion proteins comprising ubiquitin fused between thioredoxin and a polypeptide of interest
284	20030605	108	US 20030104365 A1	Method of reducing cellular production of amyloid beta
285	20030529	249	US 20030100093 A1	Human telomerase catalytic subunit: diagnostic and therapeutic methods
286	20030529	166	US 20030100057 A1	Novel human G-protein coupled receptor, HGPRBMY14, related to the orphan GPCR, GPR73
287	20030522	14	US 20030096352 A1	Use of FKBP chaperones as expression tool
288	20030522	274	US 20030096347 A1	Polynucleotides encoding two novel human G-protein coupled receptors, HGPRBMY28 and HGPRBMY29, and splice variants thereof
289	20030522	103	US 20030096344 A1	Human telomerase catalytic subunit: diagnostic and therapeutic methods
290	20030522	203	US 20030095971 A1	Compositions and methods for WT1 specific immunotherapy
291	20030515	66	US 20030093832 A1	Methods for the production of multimeric immunoglobulins, and related compositions
292	20030515	157	US 20030092017 A1	Polynucleotide encoding a novel immunoglobulin superfamily member, APEX4, and variants and splice variants thereof

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293	20030508	73	US 20030088061 A1	Materials and methods to modulate ligand binding/enzymatic activity of alpha/beta proteins containing an allosteric regulatory site
294	20030508	61	US 20030087411 A1	Death associated kinase containing ankyr in repeats (DAKAR) and methods of use
295	20030508	132	US 20030087398 A1	Method for analyzing polynucleotides
296	20030508	172	US 20030087340 A1	Novel human leucine-rich repeat containing protein expressed predominately in nervous system tissues, HLRRNS1
297	20030501	190	US 20030082782 A1	Polynucleotides encoding a novel metalloprotease, MP-1
298	20030501	161	US 20030082196 A1	Compositions and methods for WT1 specific immunotherapy
299	20030501	140	US 20030082194 A1	Compositions and methods for diagnosis and therapy of malignant mesothelioma
300	20030424	51	US 20030078389 A1	Gamma-heregulin
301	20030424	18	US 20030077692 A1	REFOLDING METHOD
302	20030424	111	US 20030077226 A1	Alzheimer's disease, secretase, app substrates therefor, and uses therefor
303	20030417	197	US 20030072767 A1	Compositions and methods for WT1 specific immunotherapy
304	20030403	296	US 20030064947 A1	Compositions and methods for the therapy and diagnosis of lung cancer

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305	20030403	149	US 20030064381 A1	Polynucleotide encoding a novel human G-protein coupled receptor, HGPRBMY26, expressed highly in testis and gastrointestinal tissues
306	20030403	198	US 20030064072 A9	Nucleic acids, proteins and antibodies
307	20030327	139	US 20030060409 A1	Polynucleotide encoding a novel human G-protein coupled receptor, HGPRBMY25, expressed highly in immune-related tissues
308	20030327	212	US 20030059923 A1	Polynucleotide encoding a novel human potassium channel alpha-subunit, K+alphaM1, and variants thereof
309	20030327	38	US 20030059461 A1	Molecular delivery vehicle for delivery of selected compounds to targets
310	20030320	159	US 20030054989 A1	Polynucleotide encoding two novel human potassium channel beta-subunits, K+betaM4 and K+betaM5
311	20030320	222	US 20030054445 A1	Polynucleotide encoding a novel human serpin secreted from lymphoid cells, LSI-01
312	20030320	196	US 20030054421 A1	Nucleic acids, proteins, and antibodies
313	20030320	147	US 20030054374 A1	Polynucleotide encoding a novel human G-protein coupled receptor, HGPRBMY27
314	20030320	88	US 20030054363 A1	Compositions and methods for the therapy and diagnosis of lung cancer

315	20030313	123	US 20030049648 A1	37 staphylococcus aureus genes and polypeptides
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316	20030313	87	US 20030049269 A1	Mycobacterium tuberculosis DNA sequences encoding immunostimulatory peptides and methods for using same
317	20030313	89	US 20030049263 A1	Mycobacterium tuberculosis DNA sequences encoding immunostimulatory peptides and methods for using same
318	20030306	224	US 20030045459 A1	67 Human secreted proteins
319	20030227	208	US 20030039635 A1	Compositions and methods for WT1 specific immunotherapy
320	20030220	135	US 20030036115 A1	Polynucleotide encoding a novel human potassium channel beta-subunit, K+betaM6, expressed highly in the small intestine
321	20030220	59	US 20030036092 A1	Directed evolution of enzymes and antibodies
322	20030213	36	US 20030033636 A1	Expression of eukaryotic peptides in plant plastids
323	20030213	147	US 20030032786 A1	Polynucleotide encoding a novel human potassium channel beta-subunit, K+betaM2
324	20030213	121	US 20030032776 A1	Polynucleotide encoding a novel human potassium channel beta-subunit, K+Mbeta1
325	20030213	146	US 20030032608 A1	Polynucleotides encoding a novel glycine receptor alpha subunit expressed in the gastrointestinal tract, HGRA4, and splice variant thereof

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326	20030213	97	US 20030032086 A1	COMPOSITIONS AND METHODS FOR REVERSE TRANSCRIPTION OF NUCLEIC ACID MOLECULES
327	20030213	56	US 20030032034 A1	Methods and materials relating to stem cell growth factor-like polypeptides and polynucleotides
328	20030213	54	US 20030031682 A1	NOVEL GROUP B STREPTOCOCCUS ANTIGENS
329	20030213	8	US 20030031669 A1	Non-antigenic toxin-conjugate and fusion protein of internalizing receptor system
330	20030206	20	US 20030027237 A1	Serine-threonine phosphatase protein of a parasitic organism of the apicomplexa phylum, applications in therapeutics
331	20030206	73	US 20030027156 A1	Methods and compositions for polypeptide engineering
332	20030206	243	US 20030027132 A1	Secreted Protein HODAZ50
333	20030130	230	US 20030023036 A1	Compositions and methods for the therapy and diagnosis of breast cancer
334	20030130	98	US 20030022825 A1	Methods and materials relating to stem cell growth factor-like polypeptides and polynucleotides
335	20030123	154	US 20030017562 A1	Novel human leucine-rich repeat containing protein expressed predominately in small intestine, HLRRSI1

336	20030123	139	US 20030017167 A1	Compositions and methods for the therapy and diagnosis of colon cancer
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337	20030109	66	US 20030007978 A1	Recombinant MHC molecules useful for manipulation of antigen-specific T-cells
338	20021226	40	US 20020198363 A1	Protein having antithrombotic activity and method for producing the same
339	20021219	63	US 20020193329 A1	Compositions and methods for the therapy and diagnosis of Her-2/neu-associated malignancies
340	20021219	89	US 20020193296 A1	Compositions and methods for the therapy and diagnosis of prostate cancer
341	20021219	85	US 20020192763 A1	Compositions and methods for the therapy and diagnosis of prostate cancer
342	20021219	23	US 20020192754 A1	Method for producing active serine proteases and inactive variants
343	20021219	41	US 20020192640 A1	Purified active HCV NS2/3 protease
344	20021205	97	US 20020183251 A1	Compositions and methods for the therapy and diagnosis of prostate cancer
345	20021205	22	US 20020182665 A1	Increased recovery of active proteins
346	20021128	47	US 20020176864 A1	Recombinant MHC molecules useful for manipulation of antigen-specific T-cells
347	20021121	239	US 20020173024 A1	Nucleic acid sequences encoding type III tenebrio antifreeze proteins and method for assaying activity

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348	20021121	82	US 20020172952 A1	Compositions and methods for the therapy and diagnosis of lung cancer
349	20021121	240	US 20020172951 A1	Nucleic acid sequences encoding type III tenebrio antifreeze proteins and method for assaying activity
350	20021121	88	US 20020172684 A1	Mycobacterium tuberculosis DNA sequences encoding immunostimulatory peptides and methods for using same
351	20021107	190	US 20020165371 A1	Compositions and methods for the therapy and diagnosis of breast cancer
352	20021107	36	US 20020165151 A1	Secreted proteins
353	20021107	37	US 20020164736 A1	Ginkgo biloba levopimaradiene synthase
354	20021107	240	US 20020164669 A1	Secreted protein HRGDF73
355	20021031	45	US 20020162137 A1	MATERIALS AND METHODS FOR THE ALTERATION OF ENZYME AND ACETYL COA LEVELS IN PLANTS
356	20021031	46	US 20020160494 A1	Tendon-inducing compositions
357	20021024	28	US 20020155553 A1	HUMAN VESICLE BINDING PROTEIN
358	20021017	76	US 20020151707 A1	Immune mediators and related methods
359	20021017	286	US 20020150581 A1	Compositions and methods for the therapy and diagnosis of breast cancer

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361	20021010	21	US 20020146793 A1	Expression of heterologous proteins
362	20021010	161	US 20020146727 A1	Compositions and methods for the therapy and diagnosis of breast cancer
363	20021003	56	US 20020142429 A1	Elongation factor-2 kinase (EF-2 kinase) and methods of use therefor
364	20020926	33	US 20020137894 A1	Megakaryocyte stimulating factors
365	20020926	21	US 20020137146 A1	Novel expression vectors for production of foreign proteins as soluble forms
366	20020912	70	US 20020127623 A1	Biosensors, reagents and diagnostic applications of directed evolution
367	20020829	119	US 20020120116 A1	ENTEROCOCCUS FAECALIS POLYNUCLEOTIDES AND POLYPEPTIDES
368	20020822	29	US 20020115225 A1	Microdevices for high-throughput screening of biomolecules
369	20020815	31	US 20020110932 A1	Microdevices for screening biomolecules
370	20020808	31	US 20020107215 A1	Tissue-associated proteins and their uses
371	20020801	133	US 20020103338 A1	Staphylococcus aureus polynucleotides and polypeptides
372	20020801	54	US 20020102709 A1	Collagen-binding physiologically active polypeptide

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374	20020627	119	US 20020082411 A1	Immune mediators and related methods
375	20020627	87	US 20020081680 A1	Compositions and methods for the therapy and diagnosis of prostate cancer
376	20020627	46	US 20020081652 A1	Recombinant fragments of the human acetylcholine receptor and their use for treatment of myasthenia gravis
377	20020627	107	US 20020081634 A1	Alzheimer's disease secretase, APP substrates therefor, and uses therefor
378	20020627	159	US 20020081609 A1	Compositions and methods for the therapy and diagnosis of breast cancer
379	20020627	97	US 20020081581 A1	COMPOSITIONS AND METHODS FOR REVERSE TRANSCRIPTION OF NUCLEIC ACID MOLECULES
380	20020606	182	US 20020068285 A1	Compositions and methods for the therapy and diagnosis of breast cancer
381	20020530	35	US 20020065392 A1	METHODS FOR PRODUCTION OF PROTEIN
382	20020530	224	US 20020064872 A1	Compositions and methods for the therapy and diagnosis of breast cancer
383	20020530	108	US 20020064819 A1	Alzheimer's disease secretase, APP substrates therefor, and uses therefor

384	20020502	89	US 20020051977 A1	Compositions and methods for the therapy and diagnosis of prostate cancer
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386	20020418	41	US 20020045739 A1	Acyl glucosaminyl inositol amidase family and methods of use
387	20020418	73	US 20020045208 A1	RECOMBINANT FUSION PROTEINS BASED ON RIBOSOME-INACTIVATING PROTEINS OF THE MISTLETOE VISCUM ALBUM
388	20020418	220	US 20020044941 A1	Nucleic acids, proteins and antibodies
389	20020404	135	US 20020040127 A1	Compositions and methods for the therapy and diagnosis of colon cancer
390	20020404	199	US 20020039764 A1	Nucleic, acids, proteins, and antibodies
391	20020328	39	US 20020037845 A1	POLYPEPTIDE WITH APPETITE REGULATING ACTIVITY
392	20020328	108	US 20020037315 A1	Alzheimer's disease secretase, APP substrates therefor, and uses therefor
393	20020221	87	US 20020022248 A1	Compositions and methods for the therapy and diagnosis of prostate cancer
394	20020131	119	US 20020012968 A1	Novel drosophila tumor necrosis factor class molecule ("DmTNF") and variants thereof
395	20020131	98	US 20020012658 A1	PREVENTION AND TREATMENT OF VEROTOXIN-INDUCED DISEASE
396	20020124	22	US 20020009781 A1	Methods for recombinant peptide production
397	20011025	58	US 20010034050 A1	Fusion peptides isolatable by phase transition

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400	20010830	49	US 20010018208 A1	Alzheimer's disease secretase, APP substrates therefor, and uses therefor
401	20010823	35	US 20010016650 A1	METHOD OF TREATMENT WITH A SECRETED PROTIEN
402	20010823	109	US 20010016324 A1	Alzheimer's disease secretase, APP substrates therefor, and uses therefor
403	20010823	22	US 20010016314 A1	LINKING GENE SEQUENCE TO GENE FUNCTION BY THREE DIMESIONAL (3D) PROTEIN STRUCTURE DETERMINATION
404	20050726	28	US 6921809 B1	Monoclonal antibody to the stabilizer peptide of the P64K antigen of Neisseria meningitidis
405	20050719	29	US 6919198 B1	Microbial protein expression system
406	20050712	50	US 6916624 B2	Antibodies that bind gamma-heregulin
407	20050705	103	US 6913918 B2	Alzheimer's disease secretase, APP substrates therefor, and uses therefor
408	20050517	79	US 6894146 B1	Compositions and methods for the therapy and diagnosis of prostate cancer
409	20050503	41	US 6887687 B2	Nucleic acids encoding human ataxin-1-like polypeptide IMX97018
410	20050426	73	US 6884784 B1	Diagnosis and management of infection caused by chlamydia

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413	20050315	112	US 6867018 B1	Alzheimer's disease secretase, APP substrates therefor, and uses thereof
414	20050222	385	US 6858710 B2	Compositions and methods for the therapy and diagnosis of ovarian cancer
415	20050222	158	US 6858407 B2	Human leucine-rich repeat containing protein expressed predominately in small intestine, HLRRS11
416	20050222	74	US 6858204 B2	Compositions and methods for the therapy and diagnosis of lung cancer
417	20050215	62	US 6855865 B2	Nucleic acids encoding plant defensins and methods of use thereof
418	20050215	41	US 6855322 B2	Isolation and purification of P. falciparum merozoite protein-142 vaccine
419	20050208	48	US 6852834 B2	Fusion peptides isolatable by phase transition
420	20050208	21	US 6852512 B2	Expression vectors for production of foreign proteins as soluble forms
421	20050208	27	US 6852508 B1	Chemokine with amino-terminal modifications
422	20050201	35	US 6849417 B1	Mammalian selenoprotein differentially expressed in tumor cells

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424	20050104	51	US 6838552 B1	Diagnosis and management of infection caused by Chlamydia
425	20041228	30	US 6835814 B1	Protease resistant flint analogs
426	20041228	83	US 6835565 B1	Alzheimer's disease secretase
427	20041228	90	US 6835561 B1	Composition of reverse transcriptases and mutants thereof
428	20041221	125	US 6833253 B2	Staphylococcus aureus polynucleotides and polypeptides
429	20041207	173	US 6828431 B1	Compositions and methods for the therapy and diagnosis of breast cancer
430	20041207	105	US 6828117 B2	Alzheimer's disease secretase, APP substrates therefor, and uses therefor
431	20041130	100	US 6825325 B1	Molecular pathogenicide mediated plant disease resistance
432	20041130	107	US 6825023 B1	Alzheimer's disease secretase, APP substrates therefor, and uses therefor
433	20041116	80	US 6818751 B1	Compositions and methods for the therapy and diagnosis of prostate cancer
434	20041116	60	US 6818611 B1	Stabilized bioactive peptides and methods of identification, synthesis and use
435	20041109	8	US 6815174 B1	Thioredoxin-glutamate decarboxylase 65 fusion protein

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436	20041109	43	US 6815171 B2	Recombinant MHC molecules useful for manipulation of antigen-specific T-cells
437	20041109	41	US 6815159 B2	Purified active HCV NS2/3 protease
438	20041102	34	US 6812379 B2	Expression of eukaryotic peptides in plant plastids
439	20041005	80	US 6800746 B2	Compositions and methods for the therapy and diagnosis of prostate cancer
440	20040928	112	US 6797487 B2	Polynucleotides encoding alzheimer's disease secretase
441	20040928	46	US 6797466 B1	Complete genome sequence of the methanogenic archaeon, Methanococcus jannaschii
442	20040914	24	US 6790950 B2	Anti-bacterial vaccine compositions
443	20040914	77	US 6790639 B2	Mammalian osteoregulins
444	20040914	102	US 6790610 B2	Alzheimer's disease, secretase, APP substrates therefor, and uses therefor
445	20040831	71	US 6784155 B1	Inhibitor and stimulator of stem cell proliferation and uses thereof
446	20040824	43	US 6780632 B1	Purification of cellular components that are substantially RNA free
447	20040810	67	US 6773911 B1	Apoptosis-inducing factor
448	20040727	112	US 6767719 B1	Mouse telomerase reverse transcriptase
449	20040720	72	US 6764851 B2	Materials and methods for the alteration of enzyme and acetyl CoA levels in plants

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451	20040706	80	US 6759515 B1	Compositions and methods for the therapy and diagnosis of prostate cancer
452	20040629	205	US 6756477 B1	Compositions and methods for the therapy and diagnosis of breast cancer
453	20040629	73	US 6756369 B2	Diagnosis and management of infection caused by Chlamydia
454	20040622	103	US 6753163 B2	Alzheimer's disease secretase, APP substrates therefor, and uses therefor
455	20040608	26	US 6746859 B1	Cloning of enterokinase and method of use
456	20040601	88	US 6743903 B1	Nucleic acids for the diagnosis and treatment of giant cell arteritis
457	20040525	137	US 6740485 B1	Anti-bacterial methods and materials
458	20040518	108	US 6737510 B1	Alzheimer's disease secretase, APP substrates therefor, and uses thereof
459	20040427	109	US 6727074 B2	Alzheimer's disease secretase, APP substrates therefor, and uses therefor
460	20040427	36	US 6727070 B2	Protein/solubility folding assessed by structural complementation
461	20040413	43	US 6719968 B2	Tendon-inducing compositions
462	20040323	38	US 6710031 B2	Protein having antithrombotic activity and method for producing the same
463	20040316	109	US 6706485 B1	Method of identifying agents that inhibit APP processing activity
464	20040309	29	US 6703484 B2	Methods for production of proteins

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466	20040127	31	US 6682942 B1	Microdevices for screening biomolecules
467	20040127	38	US 6682918 B1	Bacterial sucrose synthase compositions and methods of use
468	20040120	235	US 6680197 B2	Compositions and methods for the therapy and diagnosis of breast cancer
469	20040106	103	US 6673904 B2	Stem cell growth factor-like polypeptides
470	20040106	13	US 6673581 B1	Mannose isomerase and DNA encoding the enzyme
471	20031216	73	US 6664239 B2	Diagnosis and management of infection caused by Chlamydia
472	20031202	26	US 6656715 B1	Recombinant minimal catalytic vanadium haloperoxidases and their uses
473	20031125	69	US 6653072 B1	Methods and compositions for polypeptide engineering
474	20031125	30	US 6653068 B2	Generation of specific binding partners binding to (poly)peptides encoded by genomic DNA fragments or ESTs
475	20031125	95	US 6652857 B2	Methods for producing avian verotoxin antitoxin
476	20031104	178	US 6642041 B2	Polynucleotides encoding a novel metalloprotease, MP-1
477	20031028	32	US 6639057 B1	Monoclonal antibody against human telomerase catalytic subunit

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478	20031014	27	US 6632638 B1	Enhanced solubility of recombinant proteins using Uracil DNA glycosylase inhibitor
479	20031007	9	US 6630315 B1	Process for preparing major histocompatibility antigen class II protein and materials in which the same is bound
480	20031007	80	US 6630305 B1	Compositions and methods for the therapy and diagnosis of prostate cancer
481	20030916	77	US 6620922 B1	Compositions and methods for the therapy and diagnosis of prostate cancer
482	20030909	207	US 6617110 B1	Cells immortalized with telomerase reverse transcriptase for use in drug screening
483	20030902	73	US 6613514 B2	Methods and compositions for polypeptide engineering
484	20030902	182	US 6613329 B1	Vaccine and antitoxin for treatment and prevention of C. difficile disease
485	20030826	202	US 6610839 B1	Promoter for telomerase reverse transcriptase
486	20030722	31	US 6596545 B1	Microdevices for screening biomolecules
487	20030708	228	US 6590075 B2	Secreted protein HODAZ50
488	20030701	209	US 6586572 B2	Compositions and methods for the therapy and diagnosis of breast cancer
489	20030701	12	US 6586190 B2	Parallel high throughput method and kit
490	20030701	65	US 6586182 B1	Methods and compositions for polypeptide engineering

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492	20030624	129	US 6582923 B2	Method for analyzing polynucleotides
493	20030617	74	US 6579854 B1	Diagnosis and management of infection caused by chlamydia
494	20030617	71	US 6579678 B1	Methods and compositions for polypeptide engineering
495	20030610	29	US 6576478 B1	Microdevices for high-throughput screening of biomolecules
496	20030603	84	US 6572865 B1	Mycobacterium tuberculosis DNA sequences encoding immunostimulatory peptides and methods for using same
497	20030527	31	US 6569685 B1	Protein fingerprint system and related methods
498	20030520	42	US 6566108 B1	Expression of functional cytochrome P450 monooxygenase system in enterobacteria
499	20030520	130	US 6566059 B1	Method for analyzing polynucleotides
500	20030408	34	US 6544786 B1	Method and vector for producing and transferring trans-spliced peptides
501	20030311	140	US 6531447 B1	Secreted protein HEMCM42
502	20030304	221	US 6528054 B1	Compositions and methods for the therapy and diagnosis of breast cancer
503	20030211	96	US 6518019 B2	Compositions and methods for reverse transcription of nucleic acid molecules

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505	20030107	47	US 6503729 B1	Selected polynucleotide and polypeptide sequences of the methanogenic archaeon, methanococcus jannashii
506	20021231	50	US 6500941 B1	Gamma-heregulin
507	20021231	108	US 6500667 B1	Aspartyl protease 2 (Asp2) antisense oligonucleotides
508	20021231	22	US 6500648 B1	Methods for recombinant peptide production
509	20021126	28	US 6485934 B1	Regulatory system for inducible expression of genes with lambdoid promoters
510	20021126	123	US 6485899 B1	Anti-bacterial methods and materials
511	20021119	18	US 6482607 B1	Expression vector for use in a one-step purification protocol
512	20021105	179	US 6476195 B1	Secreted protein HNFGF20
513	20021105	234	US 6475789 B1	Human telomerase catalytic subunit: diagnostic and therapeutic methods
514	20021008	40	US 6462177 B1	Mammalian blood loss-induced gene, kd312
515	20021001	132	US 6458945 B1	Method for analyzing polynucleotides
516	20021001	36	US 6458927 B1	Polypeptide with appetite regulating activity
517	20020924	125	US 6455323 B1	Anti-bacterial methods and materials
518	20020924	72	US 6455253 B1	Methods and compositions for polypeptide engineering
519	20020903	40	US 6444457 B1	Methods for identifying herbicidal agents that inhibit D1 protease

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520	20020827	36	US 6440728 B1	Chimeric vectors comprising a phage packaging site and a portion derived from the genome of a eukaryotic virus
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522	20020827	108	US 6440698 B1	Alzheimer's disease secretase, APP substrates therefor, and uses therefor
523	20020813	32	US 6433142 B1	Megakaryocyte stimulating factors
524	20020813	80	US 6432707 B1	Compositions and methods for the therapy and diagnosis of breast cancer
525	20020716	108	US 6420534 B1	Alzheimer's disease secretase, APP substrates therefor, and uses thereof
526	20020716	7	US 6420529 B1	Genetic selection method for identifying ligands for transmembrane proteins
527	20020618	17	US 6407208 B1	Chimeric proteins with a cellulose binding domain
528	20020618	72	US 6406855 B1	Methods and compositions for polypeptide engineering
529	20020604	8	US 6399068 B1	Method of treatment with a non-antigenic toxin-conjugate and fusion protein of internalizing receptor system
530	20020514	25	US 6387664 B1	Sparc fusion protein and method for producing the same
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533	20020326	21	US 6361969 B1	Expression of heterologous proteins
534	20020312	72	US 6355484 B1	Methods and compositions for polypeptides engineering
535	20020226	39	US 6350573 B1	Methods for identifying herbicidal agents that inhibit D1 protease
536	20020219	24	US 6348333 B1	VEGF-binding KDR polypeptide
537	20020212	57	US 6346406 B1	Elongation factor-2 kinase (EF-2 kinase), and methods of use therefor
538	20020101	71	US 6335160 B1	Methods and compositions for polypeptide engineering
539	20011127	23	US 6322779 B1	Recombinant human CSF-1 dimer and compositions thereof
540	20011120	72	US 6319713 B1	Methods and compositions for polypeptide engineering
541	20011030	31	US 6309637 B1	Human microfibril-associated glycoprotein 4 splice variant
542	20011016	68	US 6303344 B1	Methods and compositions for polypeptide engineering
543	20011009	67	US 6300065 B1	Yeast cell surface display of proteins and uses thereof
544	20010925	13	US 6294341 B1	Method for detecting a substance having an activity to inhibit HIV infection using immunoassay and variant protein used for said method

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546	20010904	42	US 6284872 B1	Tendon-inducing compositions
547	20010807	38	US 6270993 B1	VEGF-binding polypeptide
548	20010807	44	US 6270772 B1	Recombinant MHC molecules useful for manipulation of antigen-specific T-cells
549	20010605	22	US 6242219 B1	Methods for recombinant peptide production
550	20010508	51	US 6228371 B1	Mycobacterium tuberculosis DNA sequences encoding immunostimulatory peptides
551	20010403	57	US 6211341 B1	Polypeptide having factor Xa inhibitory activity
552	20010327	20	US 6207420 B1	Fusion protein systems designed to increase soluble cytoplasmic expression of heterologous proteins in Escherichia coli
553	20010320	100	US 6204023 B1	Modular assembly of antibody genes, antibodies prepared thereby and use
554	20010320	55	US 6203790 B1	Platelet-activating factor acetylhydrolase
555	20010313	28	US 6200759 B1	Interaction trap assay, reagents and uses thereof
556	20010130	75	US 6180391 B1	Highly efficient controlled expression of exogenous genes in e. coli
557	20001226	508	US 6166178 A	Telomerase catalytic subunit
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562	20000822	55	US 6107104 A	Modulators of anchoring protein function
563	20000808	57	US 6099836 A	Platelet-activating factor acetylhydrolase (PAF-AH) therapeutic uses
564	20000801	49	US 6096873 A	Gamma-heregulin
565	20000704	33	US 6083715 A	Methods for producing heterologous disulfide bond-containing polypeptides in bacterial cells
566	20000704	9	US 6083477 A	Non-antigenic toxin-conjugate and fusion protein of internalizing receptor system
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568	20000620	33	US 6077689 A	Enhanced solubility of recombinant proteins
569	20000509	70	US 6060296 A	Protein kinases
570	20000425	26	US 6054290 A	Human vesicle binding protein
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577	19991228	65	US 6008193 A	Methods of using human von Willebrand factor GPIb binding domain polypeptides
578	19991214	44	US 6001632 A	Human protein disulfide isomerase
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580	19991102	65	US 5977308 A	Platelet-activating factor acetylhydrolase
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590	19990209	115	US 5869616 A	Fibrin binding domain polypeptides and uses and methods of producing same
591	19990209	26	US 5869445 A	Methods for eliciting or enhancing reactivity to HER-2/neu protein
592	19990126	56	US 5863534 A	Polypeptide having factor Xa inhibitory method of reducing blood coagulation with a novel polypeptide having factor Xa inhibitory activity
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599	19981208	61	US 5847088 A	Antibodies specific for platelet-activating factor acetylhydrolase
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601	19981201	22	US 5843714 A	DNA encoding a novel human proteolipid
602	19981117	48	US 5837488 A	Cloning and production of human von Willebrand Factor GPIb binding domain polypeptides and methods of using same
603	19981103	32	US 5830706 A	Polypeptide fusions to polypeptides of the beta-trefoil fold structural family
604	19981020	57	US 5824641 A	Method of treating of preventing influenza
605	19980901	43	US 5801017 A	Production of recombinant factor Xa inhibitor of leech <i>Hirudo medicinalis</i>
606	19980825	44	US 5798249 A	Human protein disulfide isomerase
607	19980804	25	US 5789199 A	Process for bacterial production of polypeptides
608	19980721	57	US 5783421 A	DNA encoding novel polypeptide having Factor Xa inhibitory activity
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615	19971216	98	US 5698417 A	Modular assembly of antibody genes, antibodies prepared thereby and use
616	19971216	50	US 5698403 A	Methods of detecting platelet-activating factor acetylhydrolase using antibodies
617	19971202	98	US 5693493 A	Modular assembly of antibody genes, antibodies prepared thereby and use
618	19971111	64	US 5686412 A	Protein kinases
619	19971021	115	US 5679320 A	Fibrin binding domain polypeptides and uses and methods of producing same
620	19970826	18	US 5661001 A	High molecular weight desulphatohirudin
621	19970819	43	US 5658882 A	Methods of inducing formation of tendon and/or ligament tissue comprising administering BMP-12, BMP-13, and/or MP-52
622	19970812	57	US 5656431 A	Platelet-activating factor acetylhydrolase
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627	19970617	15	US 5639635 A	Process for bacterial production of polypeptides
628	19970513	77	US 5629172 A	Expression of fusion polypeptides transported out of the cytoplasm without leader sequences
629	19970225	49	US 5605801 A	Methods of detecting lesions in the platelet-activating factor acetylhydrolase gene
630	19970107	46	US 5591618 A	G protein-coupled receptor kinase GRK6
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632	19960730	15	US 5541087 A	Expression and export technology of proteins as immunofusins
633	19960702	48	US 5532151 A	G protein-coupled receptor kinase GRK6
634	19951003	115	US 5455158 A	Fibrin binding domain polypeptides and uses and methods of producing same
635	19950117	6	US 5382660 A	TcpG gene of vibrio cholerae
636	19940308	42	US 5292646 A	Peptide and protein fusions to thioredoxin and thioredoxin-like molecules
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639	19931214	116	US 5270030 A	Fibrin binding domain polypeptide and method of producing
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4	20041209	144	US 20040248251 A1	Receptors and membrane associated proteins
5	20041111	171	US 20040224911 A1	Transporters and ion channels
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8	20040805	72	US 20040152874 A1	Transporter and ion channels
9	20040701	46	US 20040127683 A1	Transporters and ion channels
10	20040617	140	US 20040116666 A1	Transporters and ion channels
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16	20040205	63	US 20040022764 A1	Inhibition of microcompetition with a foreign polynucleotide as treatment of chronic disease
17	20040122	119	US 20040014945 A1	Transporters and ion channels
18	20040101	40	US 20040002065 A1	PROTEIN/SOLUBILITY FOLDING ASSESSED BY STRUCTURAL COMPLEMENTATION
19	20031120	144	US 20030216310 A1	Transporters and ion channels
20	20031120	43	US 20030215915 A1	Cytochrome P450 expression in enterobacteria
21	20031113	94	US 20030211499 A1	Transporters and ion channels
22	20031023	96	US 20030198944 A1	Compositions and methods for reverse transcription of nucleic acid molecules
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24	20030911	121	US 20030171275 A1	Transporters and ion channels
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28	20020627	97	US 20020081581 A1	COMPOSITIONS AND METHODS FOR REVERSE TRANSCRIPTION OF NUCLEIC ACID MOLECULES
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30	20010823	22	US 20010016314 A1	LINKING GENE SEQUENCE TO GENE FUNCTION BY THREE DIMENSIONAL (3D) PROTEIN STRUCTURE DETERMINATION
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32	20040727	112	US 6767719 B1	Mouse telomerase reverse transcriptase
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34	20040309	29	US 6703484 B2	Methods for production of proteins
35	20031125	30	US 6653068 B2	Generation of specific binding partners binding to (poly)peptides encoded by genomic DNA fragments or ESTs
36	20030520	42	US 6566108 B1	Expression of functional cytochrome P450 monooxygenase system in enterobacteria
37	20030211	96	US 6518019 B2	Compositions and methods for reverse transcription of nucleic acid molecules

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38	19991012	19	US 5965399 A	Cloning and expression of rat liver and porcine liver ribonuclease inhibitor
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40	19990720	28	US 5925523 A	Intraction trap assay, reagents and uses thereof
41	19931214	26	US 5270179 A	Cloning and expression of T5 DNA polymerase reduced in 3'- to-5' exonuclease activity